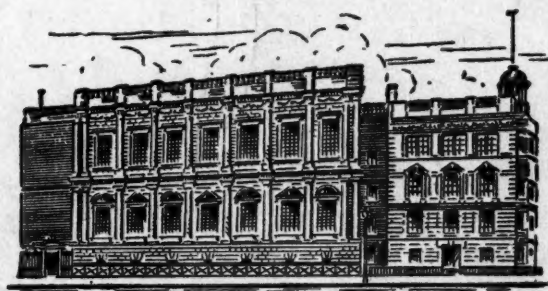


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CONTENTS FOR AUGUST, 1932.

	PAGE
SECRETARY'S NOTES	xix.
FRONTISPIECE: GENERAL LORD HILL	
GENERAL LORD HILL. By LIEUTENANT R. G. THURBURN	461
THE NORTH-WEST FRONTIER OF INDIA. (Lecture). By MAJOR-GENERAL S. F. MUSPRATT, C.B., C.S.I., C.I.E., D.S.O.	467
THE RED SHIRTS. By COLONEL D. SANDEMAN, C.I.E.	481
RECENT DISTURBANCES IN KASHMIR. By CAPTAIN T. SCOTT, p.s.c.	489
"THE WEAPON OF THE WEAK." By ADMIRAL SIR HERBERT W. RICHMOND, K.C.B.	497
THE GERMAN OFFICIAL ACCOUNT OF THE SUBMARINE WAR ON COMMERCE. By CAPTAIN G. P. THOMSON, O.B.E., R.N.	504
AMERICAN TRANSPORT IN THE WORLD WAR. By LIEUTENANT-GENERAL SIR TRAVERS E. CLARKE, G.B.E., K.C.B., K.C.M.G.	509
HIGH SPEED FLYING. (Lecture). By WING-COMMANDER A. H. ORLEBAR, A.F.C., R.A.F.	516
THE STUDY OF WAR BY JUNIOR OFFICERS: SOME FURTHER VIEWS AND EXPERIENCES	527
1. By A ONE TIME JUNIOR NAVAL OFFICER.	
2. By LIEUTENANT-COLONEL C. O. HEAD.	
3. By MAJOR C. W. SANDERS, p.s.c.	
GENERAL EDUCATION AT THE ROYAL MILITARY COLLEGE. By LIEUT- ENANT-COLONEL F. H. WITTS, D.S.O., M.C.	538
THE EMPLOYMENT AND CONTROL OF FLYING BOATS. By "DAEDALUS"	542
COAL PRODUCTS AND NATIONAL DEFENCE. (Lecture). By K. GORDON, Esq., B.A.	547
INFANTRY REORGANIZATION: A REPLY. By A REGIMENTAL OFFICER	559
REGIMENTAL DEPOTS. By MAJOR R. L. SHERBROOKE, D.S.O.	571

Continued on page 3.

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CONTENTS—continued from page 1.

	PAGE
THE MAKING OF A REGIMENTAL MUSEUM. By LIEUTENANT-COLONEL L. I. COWPER, O.B.E.	578
THE TRAINING OF JUNIOR LEADERS IN A COUNTY TERRITORIAL BATTALION. By COLONEL P. A. HALL, D.S.O., M.C., T.D.	586
ENTERPRISE IN NAVAL TACTICS. By LIEUTENANT-COMMANDER J. D. PRENTICE, R.N.	589
THE BRENNAN TORPEDO. By BRIGADIER-GENERAL W. BAKER-BROWN, C.B., late R.E.	592
THE FIGHTER TACTICAL UNIT FOR HOME DEFENCE. By SQUADRON-LEADER H. V. ROWLEY, R.A.F.	598
THE RECORDS OF THE VICTORIA CROSS. By J. PAINE	602
THE ROYAL ARMY CLOTHING DEPARTMENT. By LIEUTENANT-COLONEL H. DE WATTEVILLE, C.B.E., late R.A.	607
THE GOLD STANDARD: WHAT IT MEANS AND HOW IT WORKS. By LIEUTENANT-COLONEL DOUGLAS HOGG, M.C., <i>p.s.c.</i> , R.E.	613
THE INTERNATIONAL SITUATION:—	
THE DISARMAMENT CONFERENCE	622
IRAQ—LEAGUE OF NATIONS; OIL CONCESSIONS; SURRENDER OF SHAIK AHMED	635
LIBERIA—THE QUESTION OF A MANDATE. By R. B. PAUL	637
EVENTS IN THE FAR EAST	642
CORRESPONDENCE	646
GENERAL SERVICE NOTES	647
NAVY NOTES	648
ARMY NOTES	660
AIR NOTES	670
AIRSHIP NOTES	673
REVIEWS OF BOOKS	676
ADDITIONS TO THE LIBRARY	685

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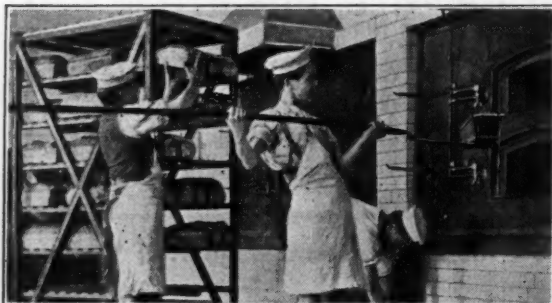
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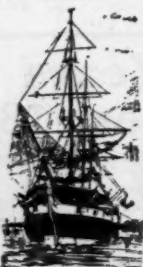
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CONTENTS.

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The Royal United Service Institution is situated just below the War Office in Whitehall. It has the best professional Library in the United Kingdom; a Lecture Theatre where an autumn and winter session of lectures is devoted to subjects of current or historical Service interest. The Reading and Smoking Rooms are provided with the leading papers, periodicals and writing materials.

The Institution is open daily from 10 a.m. to 7 p.m., except Sunday, Christmas Day and Good Friday.

THE JOURNAL.

The R.U.S.I. JOURNAL is published quarterly and sent post free to Members in any part of the world.

THE MUSEUM.

Situated in the Banqueting Hall of the old Palace of Whitehall (1622), with its magnificent Rubens ceiling, the R.U.S. Museum is a treasure house of relics and mementoes of great victories and renowned warriors. There is also a most valuable collection of Uniforms, Medals, Ship Models, and models of the battles of Trafalgar and Waterloo.

For Members and their friends, there are private entrances to the Museum from the Institution.

H.M. Forces in uniform are admitted free at the public entrance.

Admission to the general public is 1s.; Saturday after Noon, 6d.

SECRETARY'S NOTES

August, 1932.

Portrait of His Majesty The King.

To commemorate the Centenary of the Royal United Service Institution, a portrait of His Majesty The King, our Patron, has, with His permission, been painted, and will hang in the main entrance hall.

The work has been executed by Sir Arthur Cope, K.C.V.O., R.A.

Council.

Rear-Admiral G. C. Dickens, C.M.G., has succeeded Rear-Admiral C. V. Osborne, C.B., C.M.G., as Admiralty Representative on the Council.

Vice-Admiral Barry E. Domville, C.B., C.M.G., has succeeded Vice-Admiral Sir W. H. D. Boyle, K.C.B., as an *ex-officio* Member of the Council on taking up the appointment of President of the Royal Naval College, Greenwich.

Captain R. H. T. Raikes, D.S.O., R.N., has succeeded Captain T. F. P. Calvert, D.S.O., R.N., as an *ex-officio* Member of the Council on taking up the appointment of Director of the Royal Naval Staff College, Greenwich.

Suspension of Entrance Fee.

The special attention of Members is called to the fact that at the Annual General Meeting a resolution was passed suspending the entrance fee until 31st December, 1932. They are particularly requested to bring to the notice of potential members the fact that they can now join the Institution for a first annual payment of £1 5s. od., only and that for officers whose names appear in the current official lists, there is no other formality than to notify the Secretary that they desire to join.

As from the 1st January, 1933, the entrance fee will be £1 1s. od., except for officers of less than three years' commissioned service.

New Members.

The following officers joined the Institution during the months of May, June and July :—

ROYAL NAVY.

Lieutenant-Commander G. Barnard, R.N.
 Lieutenant J. P. Hunt, R.N.
 Commander W. R. Slayter, D.S.C., R.N.
 Captain W. T. Makeig-Jones, R.N.
 Commander R. D. Merriman, D.S.C., R.I.M.
 Sub-Lieutenant R. H. Royds, R.N.
 Lieutenant R. J. L. Hammond, R.N.
 Captain R. H. T. Raikes, D.S.O., R.N.
 Lieutenant E. A. Codrington Ball, R.N.
 Lieutenant M. W. Tomkinson, R.N.
 Lieutenant G. W. D. Duncan, R.N.
 Sub-Lieutenant B. K. C. Arbuthnot, R.N.
 Lieutenant J. G. Hewitt, R.N.
 Commander C. B. Barry, D.S.O., R.N.
 Commander G. E. Boulton, R.N.
 Commander R. C. Bayne, R.N.
 Captain A. R. Smithwick, D.S.O., R.N.
 Captain R. C. Giles, R.M.
 Captain C. G. Sedgwick, R.N.
 Sub-Lieutenant A. E. Sutcliffe, R.N.
 Lieutenant-Commander M. T. Collier, R.N.
 Lieutenant E. H. Tilden, R.N.

ARMY.

Lieutenant-Colonel A. K. G. Gordon-Whyte, D.S.O., R.A.
 Captain J. J. L. MacKirdy, 4th P.W.O. Gurkha Rifles.
 Lieutenant-Colonel G. T. Raikes, D.S.O., South Wales Borderers.
 Captain L. Sawyer, D.S.O., The Leicestershire Regiment.
 Captain L. F. S. Dawes, M.B.E., Royal Engineers.
 Lieutenant-Colonel A. K. Main, D.S.O., R.H.A.
 Lieutenant W. H. B. Leslie, The Royal Scots.
 Captain A. J. L. Purves, M.C., The Royal Scots.
 Colonel G. Hyde Harrison, D.S.O., late The Border Regiment.
 Lieutenant P. M. Hill, The Royal Fusiliers.
 Captain N. G. Wale, The Buffs.
 General Sir William Thwaites, K.C.B., K.C.M.G., Director-General, Territorial Army.
 Lieutenant R. G. Thurnburn, The Cameronians (Scottish Rifles).
 Captain G. V. L. Prowse, The Essex Regiment.
 Captain H. B. Harrison, M.C., Royal Welch Fusiliers.
 Captain W. A. Colhoun, 4th Battn., 14th Punjab Regiment.
 Captain A. H. G. Napier, R.E.
 Captain W. P. Kenyon, M.C., Royal Welch Fusiliers.
 2nd Lieutenant P. J. S. Boyle, Royal Scots Fusiliers.
 Lieutenant-Colonel C. A. G. O. Murray, D.S.O., K.O.S.B.

Lieutenant F. C. A. Parsons, Northumberland Fusiliers.
 Captain G. H. Vaughan-Lee, R.E.
 Major S. A. Gabb, O.B.E., M.C., Worcestershire Regiment.
 Lieutenant A. T. Young, Royal Tank Corps.
 Lieutenant M. Thorold, The Leicestershire Regiment.
 Captain C. Knowles, Royal Signals.
 Major W. J. F. Craig, M.B., R.A.M.C.
 Captain J. C. Saunders-Jacobs, 3/18th Royal Garhwal Rifles.
 2nd Lieutenant G. G. B. Anderson, The Leicestershire Regiment.
 Major J. W. Owen, R.A.S.C.
 Captain M. A. Hamilton Cox, The Worcestershire Regiment.
 Captain J. E. Dobbs, M.C., The Middlesex Regiment.
 Major H. E. Fooks, O.B.E., R.A.
 Captain W. Huelin, 2/7th Rajput Regiment.
 Captain D. R. E. R. Bateman, 5th Battn., 10th Baluch Regiment.
 Captain J. H. C. Currie, Duke of Cornwall's Light Infantry.
 Lieutenant H. F. James, The Dorset Regiment.
 Captain G. A. C. Macnab, Argyll & Sutherland Highlanders.
 2nd Lieutenant I. A. Campbell, The Hertfordshire Regiment.
 Lieutenant P. R. L. Chance, Royal Warwickshire Regiment.
 Captain R. L. Goode, 2/13th Frontier Force Rifles.
 Lieutenant W. S. C. Curtis, M.C., Somerset Light Infantry.
 Lieutenant H. Long, The Norfolk Regiment.
 Lieutenant R. H. L. Oulton, The Lincolnshire Regiment.
 Captain B. C. Cooke, 20th London Regiment, T.A.
 Colonel G. L. Crossman, C.M.G., D.S.O., Commanding 133rd Infantry Brigade.
 Lieutenant I. V. Dykes, R.A.
 Lieutenant C. H. Lyddon, Royal Signals.
 Captain D. R. Vachell, M.C., R.E.
 Lieutenant J. W. Calver, R.A.
 Lieutenant J. M. Sinclair, R.A.
 Lieutenant I. H. Good, Royal Ulster Rifles.
 Lieutenant J. A. F. Thompson, Prince of Wales' Volunteers.
 Captain C. S. de Wilton, 9th Gurkha Rifles, R.A.
 Captain G. T. Pearson, M.C., 5/13th Frontier Force Rifles.
 Major E. W. N. Wade, M.C., East Yorkshire Regiment.
 Colonel N. G. M. Jarvis, D.S.O., late R.A.
 Captain F. S. B. Grotian, M.C., R.A.
 Captain H. A. Hamilton, R.A.
 Captain E. L. Jerwood, M.C., 28th London Regiment, T.A.
 Lieutenant T. A. H. Coltman, R.A.
 2nd Lieutenant The Hon. Christopher Furness, Welsh Guards.
 Lieutenant G. N. Tuck, R.E.
 Major A. M. Cutbill, M.C., The Suffolk Regiment.
 Lieutenant A. F. J. Elmslie, R.A.S.C.
 Lieutenant T. E. D. Kelly, R.A.
 Lieutenant R. W. Leckie Ewing, Highland Light Infantry.
 Captain G. E. Roberts, 4/13th Frontier Force Rifles.
 Lieutenant-Colonel J. S. Wilkinson, D.S.O., M.C., The Sherwood Foresters.
 Lieutenant H. R. E. Willis, 1st K.G.O. Gurkha Rifles.
 Lieutenant-Colonel H. S. Stewart, I.A.

Major H. E. Rudkin, O.B.E., late Royal Irish Regiment.
 Captain H. A. Stevenson, 1/8th Gurkha Rifles.
 2nd Lieutenant E. G. A. Lett, East Surrey Regiment.
 Lieutenant J. J. Abbott, Worcestershire Regiment.
 Captain G. H. Plummer, M.C., Royal Signals.
 Captain P. A. M. Edlin, Royal Warwickshire Regiment.
 Captain W. K. Scott, R.A.
 Lieutenant-Colonel M. Kirk Greene, Royal Canadian Regiment.
 Lieutenant I. D. MacInnes, Royal Scots Fusiliers.
 Lieutenant R. E. de Salis Pirrie, The Gordon Highlanders.
 Major J. S. Baines, R.E.
 Lieutenant E. A. E. Howell, The Lincolnshire Regiment.
 Lieutenant-Colonel W. R. Warden, 10th Battn., 4/9th Regts., I.A.
 Lieutenant W. F. Kiddle, Duke of Cornwall's Light Infantry.
 Lieutenant C. C. Graham, 10th Gurkha Rifles.
 Captain M. V. Wright, 2nd Battn., 10th Baluch Regiment.
 Lieutenant H. M. Liardet, Royal Tank Corps.
 Captain C. C. H. Smith, Government of India Political Department.
 Lieutenant L. A. Harrison, The Worcestershire Regiment.
 Major R. H. Rayner, M.B.E., Royal Signals.
 Lieutenant W. P. Trotter, M.C., late Royal Fusiliers.
 Lieutenant T. W. A. H. Harrison-Topham, K.O.Y.L.I.
 Lieutenant R. W. W. How, R.E.
 Colonel W. N. Hay, C.I.E., D.S.O., Indian Army (ret.).

ROYAL AIR FORCE.

Squadron Leader E. J. Bussell, R.A.F.
 Squadron Leader C. M. McEwen, M.C., D.F.C., Royal Canadian Air Force.
 Flying Officer A. G. Cleland, R.A.F.
 Flying Officer E. R. Simmonds, R.A.F.
 Flight Lieutenant T. P. P. F. Fagan, R.A.F.
 Flight Lieutenant G. Combe, R.A.F.

CIVILIAN MEMBERS.

J. F. Phillips, Esq., M.B.E. (late Admiralty Librarian).
 G. H. Brennan, Esq.

Change of Telephone Number.

The telephone number of the Institution has been changed to Whitehall 5854 (two lines).

JOURNAL.

Military Contributions—Commanding Officers' Approval.

Serving officers in the Army must forward the written approval of their Commanding Officer with any articles or letters sent to the Editor for publication in the JOURNAL, as this is now required by the War Office when such contributions are sent there for Official sanction.

Copies of the Frontispieces.

A limited number of copies of the coloured Frontispieces, published in recent numbers of the JOURNAL, are available for sale and can be supplied, post free, for 6d. each.

LIBRARY.

Facilities for Borrowing Books.

The special attention of Members who are paying the comprehensive annual subscription of £1 5s. od., is invited to the fact that they are thereby entitled to the full privileges of the Lending Library without further charge. These include the right to have sent to them not more than four volumes at a time on loan, the Member paying postage both ways.

Old Members who have not wished to conform to the new arrangement and who are still paying the original subscription of £1 1s. od., must pay an additional subscription of 10/- per annum in order to belong to the Lending Library.

All Members are, of course, free to use the Library when they visit the Institution.

MUSEUM.

Royal Air Force Section.

An account of the newly-formed Royal Air Force section of the Museum was published in the JOURNAL for May, 1932, page 327.

Collection of Medals.

The Institution's collection of medals has received a valuable addition by a generous gift of eleven Sutlej medals from Colonel W. B. Capper. Although Colonel Capper has made every effort to complete this set, he has been unable to obtain the following four medals :—(1) Moodkee—Bar Aliwal ; (2) Ferozeshuhur—Bar Aliwal ; (3) Moodkee—Bars Aliwal, Sobraon ; (4) Ferozeshuhur—Bars Aliwal, Sobraon. It is hoped that some other generous donor may be kind enough to complete the set.

Regimental Badges and Buttons.

It is desired to complete the Institution's collection of Regimental Badges and Buttons, including those of the Regular units, Militia and Volunteers.

Members who can make contributions to the Collection are requested to communicate particulars to the Curator, who will inform them whether the Badges or Buttons offered are already in the Collection.

Ship Model Postcards.

A series of photographic postcards of selected models illustrating types of ships of the Royal Navy in the days of sail and in the present fleet are now on sale at 1s. per packet of eight—post free.

Additions.

- (8474) Snuff Box made from the wood of the "Mary Rose."—Presented by Admiral Sir H. E. P. Cust.
- (8475) Friend's Patent Steering Log.—Presented by Captain F. M. Barwick.
- (8476) Collection of uniforms.—Presented by Miss Galpin.
- (8477) Full-dress coat, Bengal Native Infantry.
Engraving of the Charge of the Light Brigade, by Caton Woodville.—Presented by H. L. Ellis.
- (8478) Lock from the Arsenal of Sebastopol.
Piece of a shoulder-belt plate pierced by grape shot in the battle of the Alma.—Presented by Captain J. F. Adye.
- (8479) Indian Mutiny and Abyssinian Medals.—Presented by Miss Burd.
- (8480) Shoulder-belt plate of the King's American Regiment, 1782.—Presented by C. Cumberland.
- (8481) Articles of equipment, 13th Duke of Connaught's Bengal Lancers.—Presented by Lieut.-Colonel Stewart Gordon.
- (8482) Helmet, Artists' Rifles, 1881-1900.—Presented by Captain K. R. Wilson.
- (8483) Model of a Bristol Monoplane, 1915.—Presented by the Bristol Aeroplane Co.
- (8484) Device for demonstrating the use of the Norman Aerial Compensating Foresight.—Presented by D. L. Norman.
- (8485) Hussar Officer's girdle.—Presented by the Marquess of Cambridge.
- (8486) Collection of photographs of the salvage of the German Fleet at Scapa Flow.—Purchased.
- (8487) Model of a Bristol Scout "D" (1914).—Presented by the Bristol Aeroplane Co.
- (8488) Orders and Medals of the late Brigadier-General Sir H. W. Jackson.—Presented by Colonel T. H. Forsyth.
- (8489) Photographs of Colonel Marchand at Fashoda, and a letter from him to Colonel Jackson.—Presented by Colonel T. H. Forsyth.

- (8490) Model of a 6-inch B.L. Hydropneumatic Coast Defence Gun, 1890-1900.
—Presented by Colonel F. S. Garwood.
- (8491) Model of H.M. Aircraft-Carrier "Glorious."—Purchased.
- (8492) Twelve water-colour paintings of naval and military types.—Presented by Miss Bacon.
- (8493) Model of a time gun and sun-dial.
- (8494) Coloured engraving of the Charge of the 14th Light Dragoons at Ramnuggar, 1848.
- (8495) Coloured engraving of the Charge of the 16th (Queen's Own) Lancers at Aliwal, 1846.
- (8496) Coloured engraving of the battle of Gwanga, Cape of Good Hope, 1846.
- (8497) Coloured engraving of the Charge of the 3rd King's Own Dragoons at the battle of Chillianwallah, 1849.
- (8498) Coloured engraving of the South African Army, December, 1852.
- (8499) Boat's Badge of H.M.S. "Rodney."—Presented by the Commanding Officer.
- (8500) Photogravure of "The Palace of Whitehall," reproduced from a picture at Windsor Castle showing the Palace at the time of Charles II.—Presented by H. J. Tozer.
- (8501) Badges of the Royal Irish Regiment.—Presented by Lieut.-Colonel C. F. Call.

Attendance.

The amount taken for admission during the past Quarter was :—

£134 3s. 6d. in May.
£98 16s. 6d. in June.
£128 14s. 6d. in July.

Purchase Fund.

This Fund has been opened to assist in the purchase of new exhibits. The Council hope that it will receive the support of Members interested in the Museum.

CENSUS OF REGIMENTAL COLOURS.

As previously announced, it has been decided to compile a Census of Colours, Standards, Guidons, Trumpet and Pipe Banners of all branches of H.M. Land Forces, including Regular Troops, Militia, Yeomanry, Territorial Force or Army, as well as of Fencible and Volunteer formations of the past, and of the Royal Marines. The success of this project must depend on the co-operation of voluntary supporters. Members and others interested are asked to volunteer as representatives, either of a particular regimental unit, or of a district or area.

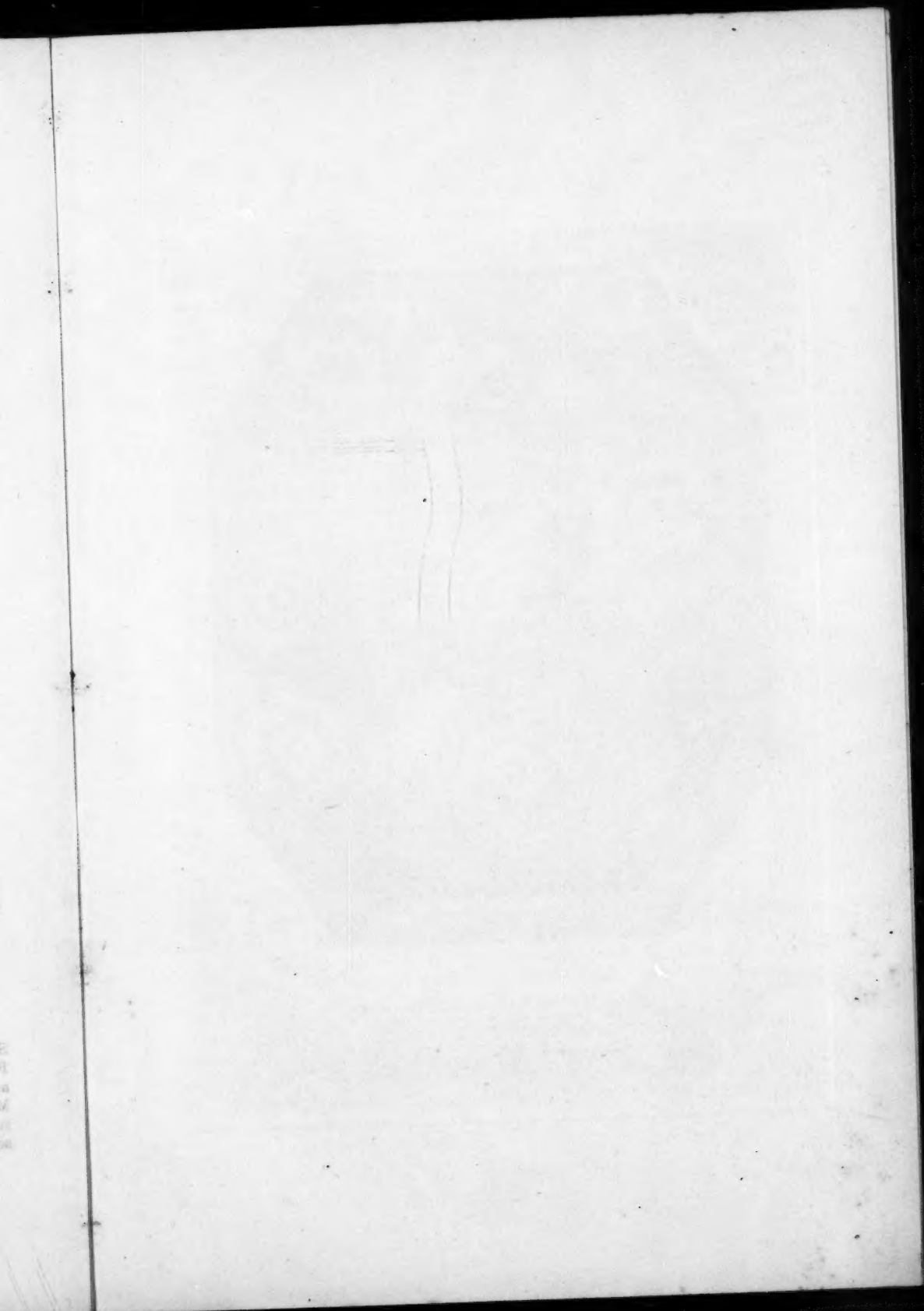
On being registered these representatives will receive a supply of cards stating the exact particulars which they are asked to fill in. When completed, the cards should be returned to the Secretary of the Royal United Service Institution, and the envelope marked "Colours" in the top left-hand corner. They will then be filed until sufficient information has been collected to warrant further utilization.

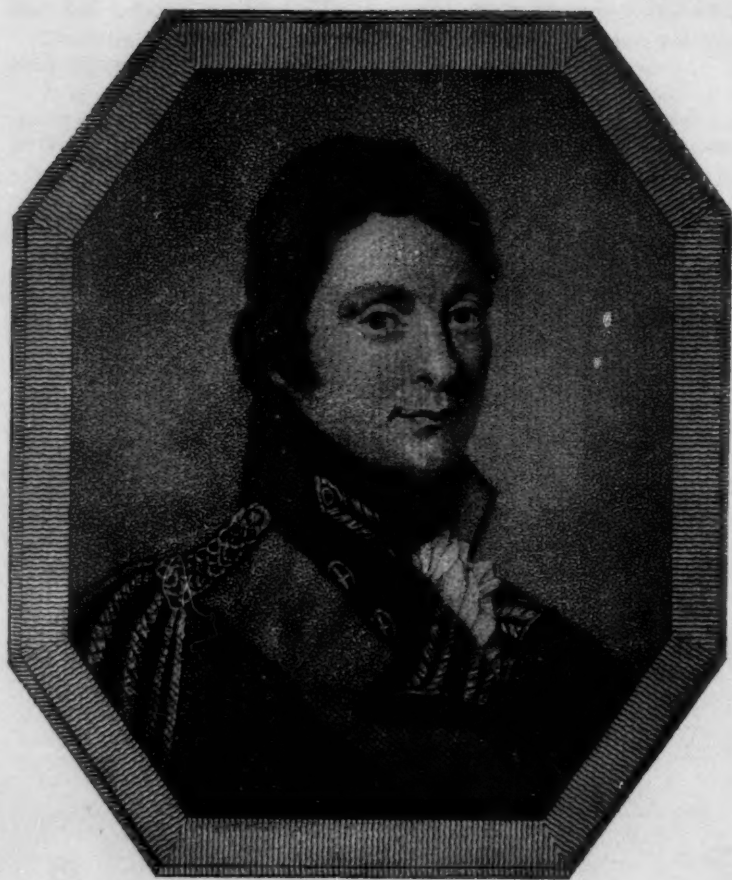
The ultimate object is to publish the Census in volume form, but this again must depend on the requisite financial support being forthcoming.

It is particularly desirable that, whenever possible, cards should be accompanied by a good photograph of the Colour or Standard, as it exists to-day. To be of value this must show the Colour extended and not hanging in folds.

REGIMENTAL MUSEUM NOTICE.

A Regimental Museum is being formed at the Depot of The King's Regiment in Liverpool, and gifts of war souvenirs, articles of uniform, medals, etc., associated with the Regiment will be welcome.





Lieut. General Lord Hill, G.C.B., K.T.

CAPTAIN ROWLAND HILL WAS SELECTED BY COLONEL GRAHAM WHEN RAISING THE PERTNSHIRE VOLUNTEERS (80TH) NOW 2ND BATTALION OF THE CAMERONIANS (SCOTTISH RIFLES), AS SECOND IN COMMAND. LATER HE COMMANDED THE REGIMENT AT THE MEMORABLE BATTLE OF MANDORA 1801 IN WHICH IT EARNED GREAT DISTINCTION FOR VALOUR. HE SUBSEQUENTLY COMMANDED A CORPS IN THE PENINSULA AND DURING THE WATERLOO CAMPAIGN, AND FINALLY BECAME COMMANDER IN CHIEF OF THE BRITISH ARMY.

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All communications (except those for perusal by the Editor only)
should be addressed to the Secretary, Royal United Service Institution.]

GENERAL LORD HILL

By LIEUTENANT R. G. THURBURN, The Cameronians
(Scottish Rifles)

THE personality and achievements of the Duke of Wellington so dominated the British military stage during the wars following the French Revolution that many other figures, a few of which in ordinary times might have stood out as great leaders, have run the risk of becoming undervalued if not almost forgotten. Conspicuous amongst these was Lord Hill, a great and good soldier, who, in addition to his outstanding service in the Peninsular War, should be remembered as having been Commander-in-Chief of the Army and one of the six Presidents elected by the Royal United Service Institution when it was founded just over a hundred years ago. For these various reasons it seems fitting to recall both his remarkable soldierly qualities and his brilliant services in the field.

Already as a boy he evinced that gentle disposition and aversion to unnecessary suffering which characterized him throughout life. In his youth he once fainted at sight of a boxing match, so that when he elected to enter the Army his decision was the cause for much surprise amongst those who knew him best. On being appointed Ensign in the 38th Foot in 1790, he obtained leave for two years to go and study at the Military Academy of Strasbourg, which was at that time famous throughout Europe for its military instruction.

His first active service occurred in the minor expedition to Toulon in 1794, in which he distinguished himself alike by his coolness and by his military talent. He was A.D.C. to three Generals in succession, one of whom, O'Hara, said "That young man will rise to be one of the first soldiers of the age." He was then promoted Captain into the

86th Foot for his services. But, in addition, his conduct at Toulon had been noted by Thomas Graham, later General Lord Lynedoch, who was then serving as a volunteer with the British forces, and when Graham raised the 90th Regiment in 1794 he offered the majority to Hill, who accepted it, thus becoming before long Second Lieutenant-Colonel. With his new regiment, Hill served in the minor and ill-conceived expedition to Isle Dieu, was stationed in Gibraltar during 1796-8, and took part in the reduction of Minorca in 1798.

In 1801 a British army was despatched to Egypt to oust the French troops in possession of the country, and the 90th Foot, Colonel Hill being now in command, took part in the opposed landing in Aboukir Bay. The French withdrew from the foothills overlooking the Bay, and the next day, 13th March, 1801, the British advanced in two columns to Mandora, the 90th leading the right column. Owing to a last minute error of the administrative authorities at home, the 90th had embarked wearing light dragoon helmets, a circumstance which turned out to be of peculiar advantage to themselves. A body of French cavalry, imagining that they were opposed by dismounted troopers fighting at a disadvantage, seized the opportunity to charge, but received such a warm welcome that they broke after suffering very heavy casualties. During this action Hill nearly lost his life and was only saved by his hat,¹ the hard brim of which turned a ball so that he escaped with a severe blow on his forehead and eye. As it was, he was carried off the field and accommodated in a cabin in the flagship. There he was visited by the Turkish Captain Pasha, who presented him with a jewelled sword as a token of admiration for his gallantry. To the same cabin was later brought the Commander-in-Chief, Abercromby, who expired in Hill's presence on 28th May.

On return to England in 1802, the 90th was at first to have been disbanded, then as suddenly ordered to recruit. While engaged in filling up his ranks, Hill was appointed Brigadier-General and ordered to Ireland. Before his departure he received a farewell address from the officers of the 90th in which they declared "that the discipline he maintained in his regiment has ever gained it the distinguished praise and approbation of all the general officers they have ever served with—a discipline so tempered with mildness that must have endeared him to every individual in the regiment as well as his general attention to their private interests."² Service in Ireland and England, performed as con-

¹ Now in the R.U.S. Museum.

² In the Dictionary of National Biography it is stated that: "Under Hill's strict but always considerate rule the 90th had been a particularly well-ordered corps. Among the improvements introduced into the regiment by him were a regimental school and separate mess for the sergeants, then a novelty." Hill's character and reputation are best illustrated by the nicknames of "Daddy Hill" or "Farmer Hill," by which he was always known to the end of his days.

scientifically as that in the field, occupied Hill until 1808. He had been promoted Major-General in 1805.

Ordered to join Wellington in the first of his Peninsular campaigns, Hill at the head of his brigade was engaged at Roleia, 17th August, 1808, this action being the first encounter of importance with the French in which the latter met, and failed to stop, the advance of British troops. After taking part in the retreat to, and battle at Corunna in January, 1809, Hill returned to England with his brigade and was stationed at Plymouth, where his attention to the comforts of his troops and their families created a great impression. Returning to Portugal in March, 1809, he commanded the 3rd Division, and distinguished himself in the brilliant passage of the Douro at Oporto.

At the battle of Talavera, July, 1809, Hill's life was, for a second time, saved by his hat, which took the force of an enemy's ball, but the blow compelled him to leave the field.

Of Hill's share in the 1810 operations it is best to quote Robinson, who writes:—"The ability with which Hill aided Wellington—now closely watching Reynier; now hurrying by forced marches towards Wellington, thus reaching him in time for the battle of Busaco; now preventing Masséna from effecting a passage over the Tagus into the fertile districts of the Alemtejo—have always been much praised. Promptitude and daring in action, combined with a readiness to subordinate his personal operations to the furtherance of Wellington's general plan, especially marked the character of Hill, rendering him conspicuously a model for soldiers." Again Napier, in recording Hill's return to Portugal after sick leave, states that he "re-assumed the command of the 2nd Division amidst the eager rejoicings of his troops." The contrast between his influence and that of Wellington, great commander though the latter was, is indeed striking. Wellington took little interest in his troops, and repeatedly passed the severest censures on them, being as grudging of praise as he was liberal with his strictures. It is not to be wondered that the British soldier, then as now a very human being, should have responded all the more to the strict but fatherly manner in which Hill administered his command.

The close of the year 1811 was to witness the first great success achieved by Hill in independent command at Arroyo dos Molinos. In order to remove the menace of Girard's Division in Estramadura, Hill was ordered to operate against him, whereupon Girard retired, and on 27th October reached the village of Arroyo dos Molinos, West of Truxillo. By forced marches through mud and rain Hill reached Alcuesca, four miles off, from which he intended to surprise his enemy, as yet unaware of his near approach. The weather was fiercely wet and stormy; the

British bivouacked that night in open fields at the full mercy of the elements, while a cordon drawn round the nearest villages prevented any hint of their presence being conveyed to the French.

In the early hours of 28th October, having sent a part of his force to cut off the enemy's line of retreat through Truxillo, Hill advanced and threw his troops against Girard before daybreak. At that very moment a violent hailstorm caused the French picquets to turn their backs. Taken utterly by surprise, the enemy made a gallant but short resistance; all that was possible for a brave and determined General at such a juncture was done by Girard; but he was unable to restore the situation. His troops were routed, and Hill captured (as he says in a letter to his sister) "one General, one Colonel, 35 Lieut.-Colonels and inferior officers, 1,400 prisoners, and probably 500 killed. The others dispersed, having thrown away their arms; we have also got all the enemy's artillery, baggage, and magazines—in short, everything that belonged to the corps." On the side of the British there were not more than 70 casualties. Napier's verdict is that: "... Hill neglected no precaution, let no advantage escape, and to good arrangements added celerity of movement, with the utmost firmness and vigour of execution. His troops seconded him as he merited." Scherer, in his "Recollections," adds that "he gained great credit for this well-conducted enterprise, and he gained what, to one of his mild, kind and humane character, was still more valuable, a solid and bloodless victory." Still better, Hill became the subject of flattering remarks on the part of Wellington: "... he did the work handsomely"; while to Lord Liverpool he wrote, "his services have been always meritorious, and very distinguished in this country, and he is beloved by the whole Army." Hill was thereupon created a K.B., an honour which Wellington had asked for him two years previously. On 1st January, 1812, he was promoted Lieutenant-General.

As a preliminary to his operations in 1812, Wellington decided to attempt to increase still further the difficulties of communication between the armies of Soult and Marmont. Accordingly, in May, Hill was despatched to Almaraz, for the purpose of capturing the French fortifications covering the bridge of boats at that point, which constituted the one means of passage over the Tagus still left intact. Owing to the number of French troops at hand and the nature of the country, and not least the strength of the fortifications, the operation was not only hazardous but presented great difficulty. On 16th May, Hill reached Jaracejo, six miles from Almaraz, without the knowledge of the French. The latter, indeed, by Hill's skilful ruses, were led to expect an advance in a totally different quarter. After two days spent in reconnoitring

their strong position, Hill decided that his only chance of surprise lay in bringing up a brigade by a wretched mountain path close up to one of the forts, which was then to be rushed by escalade. At the last moment the enemy's suspicions were aroused, but it was too late. Indeed, the daring attack succeeded so well, that the garrison of the second fort fled in panic. The destruction of the bridge of boats was then carried out. This difficult enterprise was particularly commended by the Commander-in-Chief at home, the Duke of York, because of the comparatively small loss of life which it involved. Napoleon spoke of him as a "daring old man." Napier pointed out that, had the attack failed, "he would have been exposed to the greatest misfortunes, every slanderous tongue would have been let loose on the rashness of attacking impregnable forts, and a military career, hitherto so glorious, might have terminated in shame. But General Hill, being totally devoid of interested ambition, was necessarily unshaken by such fears."

Immediately after the action at Almaraz a junction of French forces under Drouet to his front compelled Hill to retire, until he in turn received reinforcements. But Hill—to quote Napier once more—"with an uncommon mastery of ambition, refrained from an action which promised him unbounded fame, simply because he was uncertain whether the state of Lord Wellington's operations in Castile, then in full progress, would warrant one. His recent exploits had been so splendid that a great battle gained at this time would, with the assistance of envious malice, have placed his reputation on a level with Wellington's. . . . his forbearance must, therefore, be taken as a proof of the purest patriotism."

During the remainder of the Peninsular War, Hill had his share, and no easy one, of its toils and triumphs. He commanded the right of the Army at Vittoria on 21st June, 1813; while on the last day of the fighting on the Nive, 13th December, 1813, he was attacked in great force by the French from Bayonne Camp. Thereupon, unaided, he gave them what Wellington called "the soundest thrashing they ever had." At the instant of victory Wellington came up, caught him by the hand and said, "Hill, the day is your own!"

The close of the war brought Hill many honours; he was created a peer, received a pension, the thanks of Parliament, the freedom of the City of London, and many swords of honour. His active service was not, however, at an end. Napoleon's return from Elba in 1815 caused the Cabinet to send Hill post haste to Belgium at the end of March to get into touch with the Prince of Orange and so prevent the Belgians from undertaking any rash or premature action before Wellington's arrival. In the actual campaign he commanded the 2nd Army Corps at Waterloo where, by a curious chance, he found himself once

more opposed to Girard. During the battle he had his horse shot under him and was much bruised by the fall; indeed, he was thought by his staff to have been killed. Subsequently Wellington wrote in his despatch: "I am particularly indebted to General Lord Hill for his assistance and conduct on this as on all other occasions."

As second in command of the Army of Occupation, Hill remained in France till the withdrawal in 1818. In view of the events of 1919 it is of interest to read the lines he addressed to his sister from Paris: "... the allies ought not to leave without so completely clipping the wings of France as to render its government, be what it may, totally incapable of disturbing the peace of Europe again: the only way of doing which is to disband all the present forces, and to occupy with foreign troops, for some time to come, all the strong towns on the frontiers of France . . ."

Lord Hill, who was a great favourite with George IV, carried the royal standard at his coronation. Promoted General in 1825, he declined successively the command in Scotland, the command in India, and the Master-Generalship of the Ordnance. Eventually, however, on Wellington's advancement to be Prime Minister, he was appointed Commander-in-Chief at the Horse Guards on 16th February, 1828. This post he held for fourteen years until, in 1842, failing health compelled him to tender his resignation. A few months later he was dead, mourned by all who knew him. In the flyleaf of his official letter book was found the following passage from Proverbs: "A soft answer turneth away wrath; but grievous words stir up anger." His character was ably summarised as follows by an officer who had served under him: "The great foundation of all his popularity with the troops was his sterling personal worth, and his heroic spirit; but his popularity was increased and strengthened as soon as he was seen. He was the very picture of an English country gentleman. To those soldiers who came from the rural districts of Old England, he represented home . . . his fresh complexion, placid face, kind eyes, kind voice, the total absence of all parade or noise in his habits, delighted them. The displeasure of Sir Rowland Hill was worse to them than the loudest anger of other generals. . . His kind attention to all the wants and comforts of his men, his visits to the sick in hospital, his vigilant protection of the poor country people, his just severity to marauders, his generous and humane treatment of such prisoners and wounded as at times fell into his hands—all consistent doings of a virtuous and noble spirit—made for him a place in the hearts of the soldiery."

THE NORTH-WEST FRONTIER OF INDIA

By MAJOR-GENERAL S. F. MUSPRATT, C.B., C.S.I., C.I.E., D.S.O.

On Wednesday, 13th April, 1932.

FIELD-MARSHAL SIR CLAUD W. JACOB, G.C.B., G.C.S.I., K.C.M.G.,
in the Chair.

THE CHAIRMAN, on introducing the Lecturer, recalled his long experience on the General Staff in India.

LECTURE.

THE title of this lecture may appear somewhat wide, but naturally it is more particularly with the military aspects of the Frontier that I propose to deal. Indeed the subject leads one inevitably into a military line of thought for, whether one is dealing with the topography, the ethnography, the manners, customs, economics or with the religions of the Frontier, wars and invasions have shaped the conditions which we find on this fringe of the Indian Empire, while the raid and the blood feud run as a *leitmotif* through the whole theme.

The home of a troublesome but attractive people, a forsaken and at times a forbidding country, yet certainly appealing in many ways to those who know it best; I venture to think that soldiering in India would be a dull and somewhat grim affair were it not for the Frontier and its tribes. Supposing we had merely to ring the changes between places such as Bangalore, Bombay, Barrackpore and Benares, life would tend to become monotonous, and efficiency and keenness would suffer. After many years of down-country humdrum routine even Bannu might beckon to us as a contrast. The tribes provide a background of potential incident which keeps up our interest and reconciles us to dispense with many of the amenities of life in Frontier and trans-Frontier stations. Without them how would we be able to withstand the assaults of the Finance Department or the criticisms of the Legislative Assembly? But we know that in India expenditure on defence amounts to about two shillings per head of the population, whereas in Great Britain it amounts to about £2 10s. od.; and in view of the tribes and their hinterland we are perhaps justified in thinking that the services rendered by the Army and the Air Force are not unduly dear at the price.

THE FRONTIER.

The North-West Frontier marches with Afghanistan throughout its length from the Pamir region North of Gilgit, where three Empires just do not meet; Russia, by design, having been ridden off by stretching Afghanistan out into a narrow strip through which flow the head waters of the Oxus River. Our potential difficulties are centred in the area where we have the double frontier, the Afghan frontier known as the Durand Line, and the Administrative Border which bounds the administered districts; the strip in between being tribal territory, a Tom Tiddler's ground in which we exercise an uncertain and varying degree of political control but where our writ does not run. Within the tribal belt each man is a law unto himself. But the Pathan code of ethics—such as it is—can only be ignored at the risk of bullet or knife, a more effective deterrent than is perhaps generally realized, especially against lapses of domestic virtue. This dual frontier ends with the southern limits of the North-West Frontier Province, and in Baluchistan we get the rational position of our administration extending up to the Durand Line.

THE TRIBES.

I need say very little by way of general description of the tribes and their characteristics. They are not of such stuff as Disarmament Conferences are made of, the first desire of the individual being to possess a rifle. That achievement is to the young Pathan what being given school colours or a "blue" means to the youth of our country. So the Pathan's mind turns healthily to self-preservation and enemy elimination before ideas of matrimony fill his thoughts. Rifles and wives being mainly a cash transaction they can rarely be achieved at the same time. Speaking generally, the Pathan tribesman is hardy, courageous, jealous of his independence, credulous and easily swayed by appeals to his religion. Among his virtues is a sense of humour, but his vices include arrogance and suspicion. His hospitality is proverbial.

Taking the Frontier from one end to the other the number of fighting men which inhabit it cannot fall far short of 500,000. Of these it is certainly not too much to say that at least one-third are reasonably well armed. I have no desire to conjure up bogies, so I do not for a moment wish to give you the impression that we are ever likely to be opposed simultaneously and with any semblance of co-ordinated action by some 150,000 to 200,000 well-armed tribesmen. Fortunately that is not the case. Tribal life with its clan, village and family feuds, has little cohesion, and in any case the tribes are scattered along an extended line of frontier. Even the cry of *Jehad* raised by a Moslem ruler—and this is the strongest impulse that can be invoked on the Frontier—

never has achieved really concerted action, and, let us hope, it never will. But even piecemeal risings, provided individual tribes as a whole become involved, are no light task. Pathans are expert fighters in their own difficult country, where they know every stone, and where their wonderful mobility on the hillside has full play.

THE MILITARY PROBLEM.

Given the inherent factors which I have endeavoured to indicate, namely, the difficult, mountainous, barren country; the fighting qualities and armament of the tribes; their numbers; the inaccessibility of their villages and the ready asylum they can find across the Durand Line, it will readily be appreciated that the North-West Frontier presents a military problem of no small order. Day in and day out there can be no intermission of our watch and ward on the border, and soldiering in those regions must always be rather in the nature of active service. The actual location of troops along the Frontier is essential for the immediate defence of our border and is calculated to act by their physical presence as a steadying influence upon the tribes. As a further measure, we have the advantage of the air with its extreme mobility. The fact that no tribe or section is now inaccessible is a great deterrent to trouble breaking out, and so there is a much better chance that unrest may be checked before it has gathered momentum.

But in our consideration of the Frontier, the tribes, though the most immediate, are not the only military factor. Behind them we have Afghanistan, which has its own tribal problem, whilst its tribes constitute its main military strength. There is considerable affinity of race and religion between our tribes and their neighbours in Afghanistan, and in time of trouble they will always grant each other asylum if not actual support.

It can be said that the traditional policy of Kabul has been to keep on good terms with our tribes and to retain such influence as Afghanistan naturally exerts as a Moslem kingdom. Such influence would tend to strengthen the Amir's position throughout the tribal area on both sides of the Durand Line and would be a useful lever—or, if necessary, a weapon—to hold against us. However, it is pleasant to note that our relations with Kabul are satisfactory. The present ruler of Afghanistan has proved a good neighbour, but naturally charity begins at home and he has to be a good Afghan first and a good neighbour afterwards. He has also had to consolidate his position against considerable opposition from some of the Afghan tribes, and he has done so with great skill, for the situation when he came to power was by no means easy, particularly owing to the large number of rifles which came into the tribes' possession during the rebellion.

The Afghan Army cannot be regarded as a very serious proposition, but Nadir Shah has always been a patron of the Army—he was Commander-in-Chief during the Third Afghan War—and he can be relied on to work it up so far as funds admit. Obviously it is not possible on this occasion to enter into the strategic aspects of Afghanistan; all I need say is that if we can control our own tribes we have gone more than half way towards our objective of ensuring the security of our North-West Frontier.

Before I leave this general review of military factors I must just refer to the dim, imponderable but always menacing background of Soviet Russia. We are in comparatively close contact with Soviet Central Asia at the northern end of our frontier which I am about to describe. Elsewhere we have the whole width of Afghanistan between us, but that does not necessarily remove the danger. In fact, in some ways it might even tend to complicate it, because Afghan reactions are more uncertain and Afghan weakness or instability might in future prove too tempting to Bolshevik aspirations. Afghanistan has no illusions about Bolshevism. The fate of the Central Asian kingdoms has provided an object lesson, the significance of which has not been missed.

STRATEGIC CONSIDERATIONS.

I come now to a consideration of the relative strategic importance of the various portions of the Frontier, our military dispositions to deal with them and the ideal solution for their control.

With so extended a frontier comprising such variations of country and climate, it is not surprising that conditions vary considerably; so it is difficult to generalize. Politically I should be inclined to group the tribes into three categories:—

- (i) Tribes which recognize the authority of a chief, such as the extreme northern group—Chitral, Dir, Swat—also Kalat in the South.
- (ii) Intensely democratic tribes such as the central group on the Peshawar, Kohat, Waziristan border.
- (iii) Tribes who have come under some form of loose administration as in the Zhob and most other parts of Baluchistan.

These political groups coincide fairly well with the strategic grouping I should be inclined to recognize, namely:—

- (i) Tribes whose strategic importance is due to their propinquity to Russia and China. It so happens that this vicarious importance applies nearly, but not exactly, to those tribes which render some sort of allegiance to their chiefs.

(ii) The second category would be the tribes of major strategic importance owing to their lying astride our lines of communication into Afghanistan or to their directly threatening our Frontier districts. These are mainly the democratic centre block.

(iii) Thirdly, those tribes who are too far off or too civilized to require serious military attention.

Starting from the North, proximity to Russian Central Asia and Chinese Turkestan gives the Gilgit hinterland and Chitral in the far North an importance which they would not possess on their own merits. Gilgit is part of Kashmir State, but is controlled politically by us on account of its international contacts. Chitral is under its own chief, the Mehtar. The terrain in these distant areas is so difficult that it would make invasion on any scale impracticable. But infiltration, and more especially propaganda, could be employed against us, and we therefore cannot ignore this part of the world. State troops and a corps of Scouts protect the Gilgit area, while in Chitral we have a very small regular garrison—very isolated and therefore embarrassing as regards its precarious lines of communication, but exercising an influence both politically and militarily out of all proportion to its size. Note also that we now have landing grounds at Gilgit and Kila Dosh. In addition to the regular garrison there are the Chitral Scouts and the Mehtar's Bodyguard. The Mehtar's interests and our own would appear to be identical, and he has always helped us loyally in every way. It is interesting to note that the Chitralis are non-Pathan.

Coming South, we have two more small states—Dir and Swat—under their own chieftains, the Nawab of Dir and the Wali of Swat. These two states have no international aspect as their frontiers do not run even with Afghanistan, and except on the Buner border they are at a considerable distance from our administered districts. But their rulers control, to the best of their ability, a very considerable number of tribesmen, and any hostility on their part towards us might very soon foment serious trouble. However, here again, their interests are—or should be—identical with ours, and they have thrown their weight on the side of law and order. The Wali of Swat is a very noteworthy man; in a small way a Mustafa Kemal or Reza Khan, and the progress he has made in the government of his state should be an object lesson to us. True, he has spiritual as well as temporal power, which is a great pull. He has developed his country in a remarkable way and has built roads, telephones and schools. We maintain no troops in Dir and Swat, but have just a battalion at the Malakand which acts like a bridgehead in that area.

We may well pause to consider for a moment the state of these three little principalities. I exclude Kashmir as it is a much bigger state with an entirely different orientation; it goes with the Punjab rather than with the Frontier. Although I am very much an advocate of the forward policy, I wish we could extend the system of control through petty chieftains to the tribes further South. It is comparatively easy to keep a chief well disposed by giving him moral support, as well as an allowance, and occasionally perhaps some arms. He can then take the edge off his tribesmen's warlike proclivities, while the mutual jealousies of the chiefs are likely to keep the whole in a state of some equilibrium—not too stable perhaps but a great deal better than among the irresponsible democracies. Assuming the chief to be reasonable, this form of rule is in no way incompatible with the real benefits of a forward policy. It is in fact fully in accordance with Sandeman's method. Working through the chief, roads can be made, agriculture and trade developed, and general progress encouraged.

Still further South again, the democracies are not only ripe for mischief, but unfortunately are well placed for doing mischief. We have a particularly troublesome group on the Peshawar-Kohat border in the Mohmands, Afridis and Orakzais. The first mentioned lie close to the rich plains of Peshawar District and are conveniently placed to coquette with the Red Shirts or with any other form of anti-Government activity that may be disturbing the North-West Frontier Province. Our dealings with this tribe are complicated by the fact that they live partly within our territory and partly in Afghanistan. They and their neighbours the Utman Khel and Bajauris are excitable people, easily stirred by *mullahs*, and they frequently give trouble. On several occasions since 1930 we have had to carry out some bombing within the limits of these tribes. Also, it was the Afghan Mohmands who put up most of the opposition to us in the Third Afghan War when we advanced into Afghanistan from Landi Kotal, and it should be noted that, in addition to their menace to the Peshawar plains, they lie on the flank of any advance towards Jalalabad.

The Khyber Pass lies in Afridi territory and is by far the most important strategic route on India's land frontier. We hold the Khyber in strength with regulars, and through the Pass runs a broad gauge railway and a double motor road. Immediately to the South of the Khyber we now, since the Afridi incursions during the hot weather of 1930, hold posts in the Khajuri Plain where the Afridis migrate in large numbers with their families in winter. These posts give considerably greater security to the Peshawar plain by making raids and incursions more risky for the tribesmen.

Connecting the two important military stations of Peshawar and Kohat stretches the road through the Kohat Pass, which is partly in tribal territory—rather an anomalous state of affairs. From Kohat runs the route up the Kurram Valley into Afghanistan via the Paiwar Pass. The Kurram is a vulnerable corridor between the Afghan salient of Khost on the South and the Orakzai portion of Tirah on the North. However, we are fortunate in this area, because the Turi inhabitants of the Kurram are Shiahs, and so are against their Sunni neighbours, consequently they are well disposed towards us; indeed, they look to us for protection. At Parachinar, at the head of the Kurram Valley, we have a locally enlisted corps of militia, who have frequently proved their worth. A few Mahsuds provide a non-local element in their composition.

Thus between the Khyber and the Kurram, the two main routes into Afghanistan in the northern zone, lies the block of Tirah, which is more or less a closed region to us, in which the Afridi and Orakzai inhabitants can muster some 80,000 fighting men. The forward policy has made no progress here, which is unfortunate in view of the strategical importance of this area. Our garrisons, except in the Khyber and Khajuri Plain, are within the Administered Area of Peshawar and Kohat, where, with Risalpur, the bulk of the R.A.F. is also stationed.

Leaving the Peshawar-Kohat area we come to Waziristan, where the forward policy is being put into practice with great success. Waziristan is the headquarters of another District Command, in which our garrison of regular troops, supplemented by two efficient Corps of Scouts, holds the dominant points of Razmak, Wana, and the Tochi Valley, all of which are trans-border in Waziristan proper, and also Bannu which lies just within our own administrative border. We have opened up the country with good roads fit for motors, and the system of roads is being gradually extended so as to give access to all important areas and to provide lateral communication between the various posts. These roads have done much towards civilizing the people, while their construction and maintenance bring a good deal of money into the country. The Mahsud and Wazir are slowly emerging from their shell of tribal seclusion and suspicion, though I do not wish to imply that they have as yet gone far on the road to civilization. We must admit that there have been some small risings even within the last year or two, and such will no doubt occur again. Also regrettable lapses by individual tribesmen still blot the Mahsud copy-book. But progress has been very considerable, and we have countered Afghan intrigue within Waziristan and reduced raiding into British territory almost to vanishing point.

Waziristan is not strictly speaking one of those strategical problems that one spells with a capital letter, and to solve which the staff have to work out extended plans of operations. We are unlikely to want to advance into Afghanistan by the Waziristan routes nor are we likely to be seriously threatened from that direction. It is just a hum-drum but very important domestic military commitment ; that is to say, there are some 60,000 well-armed tribesmen of the best tribal fighting material on the Frontier to be kept quiet, while the problem is complicated by the external factor of having to neutralize Afghan influences.

With Waziristan we get to the end of the North-West Frontier Province and enter Baluchistan, where there is no more independent tribal territory, for Robert Sandeman, with the help of Providence, who placed the main range of hills well away from the Afghan frontier, saw to it that we administered up to the Durand Line. Sandeman's policy was to support the Khans and make them control their clans. If the Khans misbehaved or abused their position, he deposed them. Thanks to this enlightened policy, most ably initiated by its author, Baluchistan is on the whole law-abiding and contented.

The most truly tribal area of Baluchistan is the Zhob Valley, which runs South of Waziristan. The main range of hills with the dominant peak, the Takht-i-Suliman, lies to the East, that is on the Indian side of the Zhob ; consequently, though hilly and barren, the most difficult country is not towards the Afghan Frontier. Troubles in the Zhob are usually of outside origin due to incursions of raiders or *lashkars* from Waziristan or from Afghan territory, which have swept the local clans off their balance for the time being. We maintain a garrison of a strength of about a brigade in the Zhob, the bulk of which is quartered at Fort Sandeman. There is also a most useful irregular corps of Zhob Militia. We are improving our lateral communications between Zhob and Waziristan by a motor road, which is an important step strategically.

Coming further South we reach Quetta and the Quetta-Chaman route to Kandahar, the other main strategic line from India into Afghanistan, and second in importance only to the Khyber. On this line the tribal aspect is not serious. The local tribe is the Achakzai, who live on both sides of the Frontier, which is somewhat of a complication politically, but militarily the tribe is of no great importance. Quetta is our largest garrison in India, and we have regular troops at Chaman which is a rail-head on the Afghan Frontier.

From Quetta westward to the Persian border the tribes are of local importance only, and are not of any serious military significance. Kalat is a state, large in area, small in population, under its own chief. It

was important and troublesome at the time of the First Afghan War, but is now well-behaved and it presents no particular military problem.

West of Kalat and Nushki the country on either side of the Indo-Afghan Frontier is practically desert until Persia is reached near Duzdap, which is in Persian territory. This area has no military importance of its own. Only in case of a Russian advance southward from Meshed and Herat would it acquire any strategical interest. The broad gauge railway extends to Duzdap, but, as it was operating at a loss, trains have latterly not been running.

THE TASKS OF ADMINISTRATION.

Such is a very brief description of the Frontier tribes. The duty of watch and ward on the border is the task of the Covering Troops, which total about one-third of the Army in India. On mobilization the duty of the Covering Troops is to cover the concentration of the Field Army, protect its advanced bases and lines of communication from interference by our tribes and generally to control our tribal area. I have already mentioned the principal garrisons in describing the various tribal zones from Chitral southward. Of the eight squadrons R.A.F. in India, seven are on the Frontier. Then, in addition, there are the various irregular, but efficient, corps under political control known as Militia and Scouts, which I have also indicated when describing the Frontier tribes. In Gilgit, Chitral and in the Kurram Valley they are recruited locally. Elsewhere, though of Pathan composition, they are recruited from outside the actual areas in which they are serving, and only one-third are enlisted from trans-border tribes.

In addition to the Scouts and Militia, there is a Corps of Frontier Constabulary in the North-West Frontier Province who hold posts just within our border and whose primary duty is to prevent raiding. Across the border and of purely local tribal composition is to be found yet another civil force, the Khassadars. Their duties are mainly those of road protection, and they may be looked upon as a primitive form of police functioning under political control through their *maliks*. They provide their own arms.

Our troubles with the tribes are very largely due to the economic situation within tribal territory. However, we must not exaggerate the economic factor because there is scarcely an area which cannot actually support its population at a pinch. Imports are mainly salt, piece goods, leather and iron, in exchange for an export principally of wood and charcoal. But there is very little produce to spare, and it is so much easier and more exciting to drop down to the plains in the good old way and loot a few rich *bunias* or bazaars. Take the case of Waziristan,

our occupation of the country has practically put a stop to this time-honoured pastime, and the youth of the country is thus deprived of what was both his profit and his sport. Naturally, what we want to do is to develop any natural resources the country may possess, but the frontier tracts give little scope for this. Here and there it may be possible to develop some small irrigation schemes, but there is not much new land that can be brought under cultivation, and the most that can be done as a rule is to hold up water and distribute it more equally throughout the important seasons. Something too can be done with afforestation, or more particularly the prevention of deforestation, a process which in many areas has done much harm.

By far the most pressing need, however, is to find employment for the youth of the country. What he is most fitted for and would best appreciate is military service. But here again there are grave difficulties. Trans-border recruitment is in many ways unsatisfactory. We have little hold over the individual; our war experiences were not happy, as desertion was common among trans-border men. Reserve service presents great difficulties, and it must be remembered that trans-border recruitment restricts the number of recruits from India proper, where all fighting classes with greater claims of citizenship are clamouring for more enlistment. A very interesting sign of the times and commentary on the forward policy is that we have recently had to muster out most of our Afridis and are starting once more to enlist Mahsuds.

Military service alone can never be on a scale sufficient to remove unemployment, and it is essential that the youth of the tribes should learn to seek their fortunes elsewhere. Lack of education is a handicap, but the Ghilzais have shown that it is not essential. It is interesting to note that we have enlisted some Mahsuds in our mechanized transport as lorry drivers.

THE FUTURE OF THE FRONTIER.

I have attempted to review, necessarily very sketchily, the main features of the North-West Frontier and its tribes. In conclusion I will attempt to sum up what appear to be the political and military ideals which we should strive to attain on the Frontier. It is impossible to exclude political factors because in this region political and military questions cannot be separated, while their interests nearly always are, or should be, identical.

I have already referred to the advantages inherent in small states under their own rulers, such as we have in Chitral, Dir and Swat. At the moment there appears little prospect of creating further principalities such as these, though it is just conceivable that in the case of the

Mohmands and Utman Khel something of the sort might occur at some future date. I certainly cannot see it happening in Tirah or Waziristan.

In Waziristan we shall have to proceed with the good work we have started. We should gradually extend the network of roads, and it may be possible to start some small schemes of agricultural development, though we must not expect too much in this line. Our ultimate objective should of course include disarmament, but complete disarmament is quite impracticable—so far as I can see into the future—and if it can be done at all, it will have to be tempered by a very liberal system allowing of arms to be kept under licence. We cannot in justice disarm our tribes, even if we were strong enough to do so, so long as their neighbours on the Afghan side of the Durand Line are armed to the teeth. We have merely to ask ourselves if we could guarantee protection to the disarmed tribes. The answer would obviously be in the negative. So, whatever progress we may make in Waziristan in this respect, conditions are unlikely ever to be quite the same as in India proper.

Tirah is the really difficult problem. As I have mentioned before, we ought obviously to be ruling the country from within, and our control should extend up to the Durand Line. But it may be that we have missed our chance, and with the march of events in India in general, and in the North-West Frontier Province in particular, such action is likely to be more difficult in future, unless the tribesmen of Tirah become preposterously aggressive. Out and out action such as the occupation of Tirah is perhaps somewhat against the general trend of affairs, and even if India had the will and conviction to act in this way it is doubtful whether the financial situation would allow such a step. The forcible extension of our control over Tirah would, of course, be a big thing; it would require a considerable force, would take some time, and would necessitate an extensive programme of road and barrack construction. In course of time we could probably hold the country with no more troops, or possibly even less, than are now stationed in the various cantonments of the Peshawar and Kohat Districts, but during the period of active operations and until the country had settled down it would require considerable addition to our armed strength in this sector of the Frontier.

It is interesting to consider the position of the tribes in connection with the new constitution which has just been inaugurated in the North-West Frontier Province, that is, a dyarchical system of government as in the rest of India. As further measures of self-government are in course of time introduced in the rest of India, presumably the Province will conform, and it is conceivable that the tribes may gradually be

brought into the body politic and will take their share, however small, in the scheme of a federated India. I am not speaking with any great faith at present, and I merely offer this as an observation which is interesting to contemplate. We have first to see how the present measure of reforms will work in the administered districts of the Province, since the Province as a whole is perhaps hardly ready for reforms as yet; and the tribes much less so. But Moslem India is greatly interested; it is, in fact, mainly due to feeling in India rather than in the Province that the reforms have been introduced at this stage. Those Moslems whose vision is towards the more distant future probably cherish the hope that the tribes will ultimately play their part in the scheme of Federal India in conjunction with their co-religionists in the fully administered areas.

That such refractory material as the tribes may be fused in the political crucible in some small degree, though no doubt for very temporary motives, was seen during the Afridi incursions into the Peshawar District during the summer of 1930. On those two occasions, contrary to all previous experience, they played up to the villages of British India and, in fact, posed as their champions against the British. But had our Raj—as the Afridis imagined at the time—been tottering, leaving them in a position to control the situation, it is permissible to think that their altruism would have been short-lived and the tribesman—while still “unreformed”—would rapidly have reverted to the freebooter and raider ready to gather a rich harvest from the fat villagers and fatter townfolk of Peshawar.

DISCUSSION.

LIEUTENANT-COLONEL F. G. POOLE asked whether the relations between Soviet Russia and Afghanistan were as friendly as they were. He also wished to know whether Afghanistan and the small states formed a satisfactory buffer against Soviet Russia or not.

BRIGADIER-GENERAL J. L. CLARKE, C.M.G., asked whether the tribesmen still depend to a great extent on thieving from the British forces for their supply of rifles, or whether they get them from other sources. He also desired to know whether the tribesmen possessed light automatic or machine guns and, if so, whether they knew anything about them; alternatively whether they were trying to procure any.

THE LECTURER:

In reply to the first question as to whether or not the relations between Afghanistan and Russia are as friendly as they were recently, I think one can say that Afghan relations with Russia are now correct and normal. As the whole of the northern frontier of Afghanistan marches with Russia, the maintenance of neighbourly relations is very necessary. But Afghanistan is naturally on her guard against any extension of foreign influence within her territory.

The second question was whether we can consider the position of Afghanistan and the small frontier states *vis-à-vis* Russia and ourselves to be satisfactory. As regards Afghanistan, geographically it is an excellent buffer; there is a good deal of width about it—it is rather bigger than Germany—and it has that magnificent natural obstacle, the Hindu Kush, running down the centre from East to West. The Frontier states, in so far as lies in their power, interpose admirably between us and Russia. The best buffer, of course, is the topography of the country; the passes average about 13,000 feet and the peaks run up to from 20,000 to nearly 27,000 feet, so it is not an ideal country for campaigning. There is a lot of snow in the winter, and when it melts the streams become unfordable. Indeed Providence has really given us very good protection. I do not think we have any reason to doubt the loyalty of the rulers of these states, because their interests and ours are identical.

The question whether the tribes still rely on the British troops for their supply of rifles has been asked. As a soldier I should like to repudiate this suggestion with indignation, but there is a good deal of truth underlying it! They have now perhaps less opportunity in this respect than they used to have. Although there is an occasional loss of a rifle, and occasional pilfering of ammunition, it is not the tribesmen's main source of supply, and it is now less worth their while to take the risk. There are so many rifles about that it is easy to get what they want elsewhere. If they have got the money the tribesmen can always buy them.

As to whether the tribesmen have any use for automatic and machine guns, speaking generally I should say "No"; they require too much ammunition, and therefore the tribesmen have little use for them.

THE CHAIRMAN:

Speaking from lifelong experience of the Frontier, I do not think any other country in the world but ourselves would suffer the existence of two borders, an administrative border and the Durand line on the North-West Frontier of India. All our troubles are due to that. We know what Sir Robert Sandeman did in Baluchistan. I was in Quetta with him in 1885 when our occupation of Baluchistan was rather recent and when nobody could go a yard outside the village of Quetta—as it was in those days—unless he was properly armed or had an escort. That very fine administrator took charge of the country, with the result that we now see. He made roads, far more roads than people living there now imagine, for he knew that the more communications are opened up, the more quickly civilization succeeds in barbarous countries. He supported the system of having a Khan responsible for each tribe or section of a tribe. But he did yet another thing, and this was that, if he expected that Khan to be responsible, he saw to it that the Khan was supported. It is very easy to say to a man on the Frontier, "I look to you to keep order," and then leave it at that. When trouble comes he will naturally look for support, and it will probably not be there when he needs it. Such has been the trouble further North. In Baluchistan Sandeman evolved this system, until we now administer that country right up to the Durand line; and it is very peaceful. I remember, too, a good many years ago when it was always said, especially by people from the North-West Frontier Province, "Your tribes down there are so amenable, and are quite different from what we have opposite to us." But may I ask what we have done since the War? Take Waziristan as it is now. Who would have thought a few years ago, that that

country, which used to cause us such an enormous amount of damage every year in the way of raids, would so soon become peaceful?

As the Lecturer said, we are not yet out of the wood; we shall surely have trouble there again, just as we had in Baluchistan. But what is the result? The roads are made; motor transport now travels freely throughout the country. In the old days when we had no motor transport we did not bother about roads in a country; we only wanted tracks and on those tracks our animal transport used to go. It was very easy to murder one or two of the drivers and lead off camels or mules into the hills with their loads. Nowadays in the case of a motor convoy it is possible to shoot the driver, but the load cannot be carried off, and the motor cannot be driven off the road. That, I think, has contributed a good deal to the peaceful conditions which we have there now.

It is very easy to say we ought to occupy the country right up to the Durand line; but the difficulties are very great. It is true we ought to have done it years ago. In future, if we are troubled by any tribe in that hinterland, we ought to say "Very well, no more of this. We are going to occupy your country now, and open up communications in it." Then I am certain that in a short time those tribes would become just as peaceful as they are now in Waziristan. But, as the Lecturer said, we are always faced with the difficulty of incitement to risings from the rear; that is, from Afghanistan.

The Lecturer also touched upon the effects of the new Constitution in the North-West Frontier Province. Personally I am very sceptical as to how it will work. I cannot see the local tribesmen taking part in any sort of parliamentary government. They only know one sort of government, namely that the man who gets his blow in first wins; that, I think, will be the case for many a long year yet.

The customary votes of thanks to the Lecturer and to the Chairman were passed by acclamation.

THE RED SHIRTS

By COLONEL D. SANDEMAN, C.I.E., late Q.V.O. Corps of Guides.

MUCH has been heard of the Red Shirts during the last two years, but little seems to be generally known about them or how they came into being. It would appear, however, that no comprehension of the North-West Frontier, as it is to-day, is possible unless we possess some knowledge of the Red Shirt organization, and how it came to play such a prominent part in the widespread disturbances of 1930.

Up to that year our troubles on the frontier, at any rate across the administrative border, might almost invariably be traced either to external intrigues with our frontier tribes or to the fanatical preachings of hostile *mullahs* in tribal territory. Only on one occasion during the last twenty years had the tribes been stirred up directly from British territory: that was in the summer of 1915, when the now notorious Haji of Turangzai absconded across the border from his village in the Charsadda sub-division of the Peshawar district, and raised tribal *lashkars* against us—first on the Buner border and later on the Mohmand border—before taking up his residence permanently at the village of Lakarai in Mohmand country. It is of interest to note that the storm-centre in 1915 was the same as in 1930, that is the Charsadda sub-division, and that the Haji of Turangzai is related by marriage to Abdul Ghafar Khan, the Red Shirt Leader, whose village of Utmanzai lies within a mile or two of Turangzai, which was the Haji's original home.

Although the year 1915 was the only time that trans-border troubles had emanated directly from British territory, the Province had suffered from one serious internal political upheaval, and that was in the year 1920, when the Punjab, and indeed most of India, was in the throes of the Khilafat agitation, in which Mr. Ghandi and the Ali Brothers strove so hard to bring about an *entente* between Hindus and Mohamedans against the Government while launching their non co-operation movement.

On this occasion agitators from India succeeded in stirring up the Pathans of the Peshawar district to such an extent that no less than 60,000 persons resident in our settled districts left their homes and started on their tragic migration into Afghanistan. This was known as the "Hijrat" movement (religious migration), and it happened in this wise. During the Khilafat agitation false propaganda regarding alleged atrocities committed by the British in Mohamedan countries was being spread throughout India, particularly amongst the Mohamedan population of the Punjab and along the whole of our North-West Frontier and Baluchistan border. It was being urged that it was incumbent on Mohamedans to perform "Hijrat." At that time the Amir of Afghanistan, whose position was none too secure in his own country, was espousing the Mohamedan cause in India, and he issued through the press an invitation to those in India who wished to perform "Hijrat" for the sake of their religion to take refuge in his country. A party of Mohamedans from Sind, led by some notorious agitators, started off with this intent, meaning to enter Afghan territory through Baluchistan. They were, however, refused entrance into Baluchistan by the local Government, so they set off for Peshawar, stopping en route at Lahore, where they were joined by a number of malcontents. In due course they arrived at Peshawar—a whole special train load of them—and there they called a halt for several days, and at once got busy collecting further volunteers. The news of their arrival spread like wildfire throughout the district, and within a day or two the cry of "Hijrat" was resounding in every village, *mullahs* and tub-thumpers of all descriptions vieing with each other in spreading utterly false propaganda and calling upon all true Mohamedans to respond to the call. Amongst the many false stories which were spread against the British there were two which had the greatest effect, and were almost universally believed by the ignorant and uneducated villagers. The first of these was that the British had occupied the Holy Shrine at Mecca and had posted British sentries round it; the second that British troops were to be let loose throughout the district amongst Pathan women. Such stories may seem ridiculous and, in fact, had no effect on the more steady people in the Punjab. But amongst the fanatically minded Pathans of the frontier they were seized up with avidity as proof of British injustice: so they had the desired effect. Within a few days the would-be emigrants, who in the first instance numbered only a few hundreds, had swelled to as many thousands; within a short time the whole countryside was up and preparing to migrate. During this period Khilafat volunteers, recognisable by the green sash which they wore across one shoulder, were in evidence everywhere, organizing, exhorting

and arguing with the waverers who had not yet made up their minds to go. Thus the "Hijrat" started, and day after day long processions of bullock-carts full of men, women and children with all their worldly goods, were to be seen trekking out of Peshawar and into the Khyber Pass on their 200-mile journey to Kabul, through a barren and almost waterless country—and this during the hottest part of the year.

When the Amir of Afghanistan realized what his rash invitation had led to, he issued orders to forbid the entrance of any more emigrants, but not before the entire road to Kabul was littered with whole families struggling valiantly to reach what they believed to be the promised land. And so gradually the procession turned about and wended their weary way back to British territory. They had suffered terribly, and returned sadder but wiser men, fully aware of the fact that they had been the victims of unscrupulous agitators. They were now thoroughly disillusioned. Amongst those who had been prominent in the Khilafat agitation was Abdul Ghafar Khan, the Red Shirt leader, who in 1920 was sent to prison for three years under the Frontier Crimes Regulations for refusing to give security for good behaviour.

Thus ended a frontier episode, which did no good to anybody while it caused misery to thousands, but which taught Indian agitators that these unsophisticated frontier people, when roused to action, were the finest stick in India with which to beat the Government; but not yet, for it would take some years for the effects of the "Hijrat" disillusionment to wear off, and then the chance would surely come again.

So it happened, for in the year 1930 all our troubles, both in the settled districts and across the administrative border, were due to widespread agitation in India; and Abdul Ghafar Khan of Utmanzai, who had played such a prominent part in the troubles of 1920, was again the chief performer in a drama which has again caused untold misery to the self-same rural population of the North-West Frontier Province.

On this occasion it was definitely in the settled districts that the trouble originated, and thence it spread quite naturally to tribal territory, first to the Mohmands where Abdul Ghafar Khan had a firm supporter in his blood-relation, the Haji of Turangzai, then to the neighbouring Utman Khel tribe, and lastly to the Afridis. Further South, trouble came on the Kurram border and in Waziristan, in both of which localities the disaffection of the tribes was undoubtedly due to anti-British Congress propaganda.

Now let us see how this agitation started and how it spread with such amazing rapidity throughout the settled districts. During the year 1929, when the Congress were organizing throughout India for the

launching of Civil Disobedience, they had made very little headway in the Frontier Province, in spite of strenuous efforts to do so, until they succeeded in securing, towards the end of that year, the active co-operation of Abdul Ghafar Khan of Utmanzai. The latter had been lying low since his release from jail about 1923, and had not come into prominence much, except as the organizer of the Azad School (School of Freedom) which he had started in his village for the education of boys of his own and neighbouring villages. This school was in the form of a national institution, unaided by the State, and it played a leading part in the troublous times of 1930. Abdul Ghafar Khan belongs to a good family and owns a considerable amount of land and property in the Charsadda sub-division. He is not particularly well educated, but he is a man of outstanding personality and character, possessed of immense influence over the uneducated masses in the Province. His children are—or were recently—being educated in England, and his elder brother is a retired I.M.S. doctor who is married to an Englishwoman. Though he claims to be a follower of the Congress, he has always refused to be controlled by them or by anyone else, and he maintains an entirely independent attitude. He has often been described as a mad dog, and he is undoubtedly an extraordinarily difficult man to deal with. Whether, if he is ever allowed back into the Province—he was deported in December, 1931—he will eventually decide to change his attitude and co-operate with Government, now that reforms have been introduced, is a matter for conjecture, but up to date he has steadfastly refused to do so.

Towards the end of the summer of 1929 Abdul Ghafar Khan announced in a letter to the Press that, in order to arouse the people of the frontier from their state of apathy and to convey to them the message of freedom, he proposed to organize a Frontier Youth League in the N.W.F. Province, and he invited all youths who loved their country to attend the first meeting, which would shortly be held in the village of Utmanzai, to discuss ways and means. This meeting, which was duly held and which was attended by numbers of people from the Peshawar district and by representatives from other frontier districts, marks the start of the active agitation which later assumed such alarming proportions in the Frontier Province. At this meeting office-bearers for the Central Committee were appointed, and it was agreed that the League should have branches in each frontier district and the latter should have sub-branches in every division and in every village, each branch being run by its own elected committee. In the Central Committee one of the most prominent officials was a man who had been trained in propaganda by the Soviet in Russian Turkestan, so that the

similarity of the Youth League organization, with its district and village committees and its "red army," to the analogous Soviet organizations in Russia is probably due to the knowledge gained by this man while he was in Turkestan.

The objects of the League were announced to be first and foremost, as in the case of the Indian Congress, to obtain complete independence, with various side-issues such as Hindu-Mohamedan unity, the betterment of educational and religious conditions and the like.

Abdul Ghafar Khan always poses as a social reformer, but in his speeches questions of social reform are always obscured by expressions of racial hatred and by his bitter attacks against the Government. Thus was the Frontier Youth League initiated. Once it had taken shape, there was added to it the volunteer corps known as the "Khudai Khidmatgaran" (servants of God), which is now generally known as "The Red Shirts" on account of their red clothes. This spread with extraordinary rapidity, chiefly owing to the outstanding personality of its leader and to the brains and ability of his lieutenants, many of whom were very clever barristers. In addition, the Youth League soon gained the open sympathy of the majority of the non-official intelligentsia, who believed that it was only by a universal political upheaval that they were ever likely to obtain reforms. This was particularly noticeable when the real trouble started in 1930. No one seemed to attempt to help, and many influential men who might have done so, and were expected to do so, appeared to be merely sitting on the fence. A very marked exception to this lack of co-operation, of which the Indian Army may justly be proud, was in the case of retired Indian officers living in the frontier districts, many of whom, in spite of the fact that public opinion was dead against them, fought the Red Shirt movement to the utmost of their ability and gave invaluable assistance to the civil authorities.

As soon as Abdul Ghafar Khan had set the central organization at Utmanzai on its feet, he proceeded to organize district and village committees throughout the Province, and this he did by constant touring from place to place, getting into personal touch with the people, holding meetings and making it generally known what the objects of the League were and how it should be organized.

At first he proceeded with caution and confined his activities to the Peshawar district, but in November, 1929, he carried out a long tour along the whole frontier, visiting in turn the Kohat, Bannu and Dera Ismail Khan districts, holding monster meetings at each place. The meetings during this and subsequent tours usually started with the

recitation of poems of an extremely doubtful nature by young students of the Azad School; these were followed by speeches by Abdul Ghafar Khan and other leading political agitators, the tenor of which became more virulent and anti-British as time went on. Finally, they could be described as nothing short of highly seditious.

The purport of the majority of Abdul Ghafar Khan's speeches was "Pathans awake and fight against the tyranny of the British, who are sucking your blood"; and he frequently referred to the difference in pay of the British soldier and the Indian sepoy. He also made personal attacks on British and Indian Government officials, and he used to harp on the downfall of Amir Amannullah, which he ascribed to British machinations. He is a very fine speaker and a fine upstanding man, just the type of man to appeal to frontier Pathans, so that the effect of his speeches on the ignorant rural population was remarkable. In December, 1929, Abdul Ghafar Khan attended the All-India Congress at Lahore as the chief delegate from the frontier, and the next three months he spent in constant touring round the villages of the Peshawar district, ending up in March, 1931, with another extended tour right through the districts of Kohat, Bannu and Dera Ismail Khan.

As he toured he enrolled Red Shirts. Sometimes he was accompanied by a local band and an escort of Red Shirt volunteers. It was early in 1930 that the raising of revolutionary cries such as "Inquilab zindabad—Britania barbad—Zalim hukumat barbad" (Long live revolution—Down with the British—Down with the tyrannical Government) first began to be heard, and these later became a regular part of all Red Shirt meetings.

The climax came towards the end of April, 1930, when Abdul Ghafar Khan summoned a monster meeting to his own village, Utmanzai, ostensibly to celebrate the anniversary of the Azad school. Representatives from all over the Province attended this meeting, and many villages in the Peshawar district sent Red Shirt contingents, complete with band, banners and red uniforms. This gathering lasted for two days, and one of its chief features was a highly seditious drama, calculated to bring Government into hatred and contempt, which was enacted by the boys of the Azad School.

Three days later, on 23rd April, Government took action and Abdul Ghafar Khan and his chief lieutenants and a number of other leading agitators in Peshawar City were arrested. It was these arrests which led to the disturbances in Peshawar City, the regrettable story of which is already well known, and to the subsequent widespread trouble.

The riots in Peshawar City were the signal for intensive propaganda and agitation throughout the district, and many thousands of villagers, who up to that time had taken no part in the Youth League movement, started to dye their clothes and to join the Red Shirts. The majority of these villagers had not the least idea as to what it was all about, but the soil was very fertile since the spread of agitation had been thoroughly well prepared by the organizers of the Youth League. As in the case of the Hijrat movement, when the people were imposed upon by the spreading of false stories by unscrupulous agitators, it happened again on this occasion, when a distortion of the Sarda Act (Act forbidding child marriage) was used as a handle for agitation amongst the rural population. The Sarda Act, in actual fact, did not affect in any way the Pathans of the frontier, as child marriage is unknown amongst them, but the interpretation of the Act which they were given by their leaders—and which all the more ignorant people firmly believed to be true—was that the Government was going to insist on the medical inspection of their girls before marriage. This story, which was assiduously spread amongst the Pathan villages, not only caused widespread discontent but absolute fury in the minds of the uneducated masses. Thus are the ignorant duped into joining an unlawful assembly!

As soon as the situation in Peshawar City was well in hand, troops were sent out into the district to assist the civil authorities in arresting all the leaders, and the Red Shirt movement was very quickly crushed and practically ceased to exist, except in the Charsadda sub-division, where the movement had taken a very firm hold and surreptitious agitation continued underground throughout the ensuing winter. Two subsequent outbreaks occurred at Charsadda during this winter and had to be suppressed. It was there that two attempts were made upon the life of Captain Barnes, the Assistant Commissioner, who in company with his very gallant wife and small child, was faced with an extremely precarious existence in the midst of a hostile population. Then in March, 1931, came the Irwin-Ghandi Pact and, as was anticipated, the landslide occurred.

Picture the effects of the release from jail of hundreds of national "heroes," led by a man like Abdul Ghafar Khan, upon an ignorant and embittered Pathan population! The reception given to Abdul Ghafar Khan, both at Peshawar and subsequently at Charsadda, was unparalleled in the history of the frontier, and he lost no time in reorganizing his shattered forces. The "Pact" was looked upon by the Pathans as a complete victory over government, and the Frontier Youth League, which was now declared lawful, began preparing with redoubled vigour for the "next war."

Abdul Ghafar Khan, whose energy was amazing, again started touring all over the frontier, and his speeches became more virulent than ever. Thus things went on until Christmas Day, 1931, when Government again took action and the Red Shirt movement was crushed for the second and—let us hope—last time. Abdul Ghafar Khan, with his brother and two others, have been deported from the Province, and the worst of the leaders are now undergoing various terms of imprisonment in jail. The reforms have come, and the intelligentsia should now be satisfied, but the misguided dumb thousands who formed the Red Shirt army and who suffered much for a cause which they never understood, are no better off, nor ever likely to be better off, than they were before. They should no doubt now be realising that they have been hoodwinked for the second time by unscrupulous political agitators.

THE RECENT DISTURBANCES IN KASHMIR

By CAPTAIN T. SCOTT, *p.s.c.*, 6th Duke of Connaught's Own Lancers
(Watson's Horse).

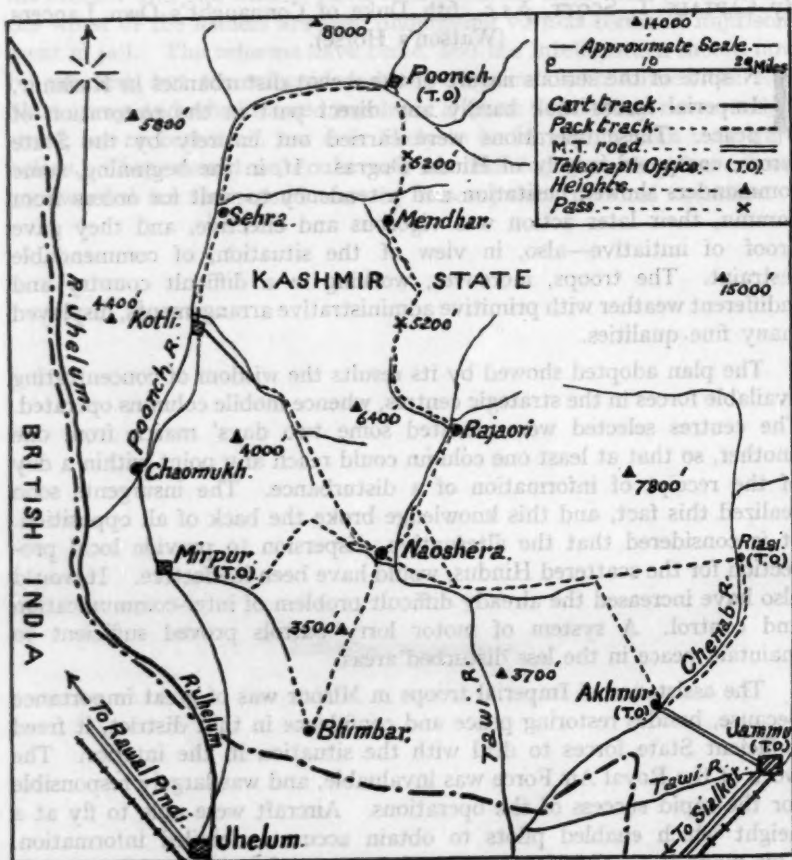
IN spite of the serious nature of the recent disturbances in Kashmir, Imperial forces took hardly any direct part in the restoration of peace. These operations were carried out entirely by the State forces, composed largely of Hindu Dogras. If, in the beginning, some commanders showed hesitation and a tendency to wait for orders from Jammu, their later action was vigorous and effective, and they gave proof of initiative—also, in view of the situation, of commendable restraint. The troops, moreover, working in a difficult country and indifferent weather with primitive administrative arrangements, displayed many fine qualities.

The plan adopted showed by its results the wisdom of concentrating available forces in the strategic centres, whence mobile columns operated. The centres selected were situated some two days' march from one another, so that at least one column could reach any point within a day of the receipt of information of a disturbance. The insurgents soon realized this fact, and this knowledge broke the back of all opposition. It is considered that the alternative, dispersion to provide local protection for the scattered Hindus, would have been ineffective. It would also have increased the already difficult problem of inter-communication and control. A system of motor lorry patrols proved sufficient to maintain peace in the less disturbed areas.

The assistance of Imperial troops in Mirpur was of great importance because, besides restoring peace and confidence in that district, it freed sufficient State forces to deal with the situation in the interior. The work of the Royal Air Force was invaluable, and was largely responsible for the rapid success of the operations. Aircraft were able to fly at a height which enabled pilots to obtain accurate detailed information. This made it possible to assess at their true value many of the reports received from other sources. Their message-dropping activities provided a degree of control otherwise impossible. It was a form of air control which appealed even to soldiers, and a most effective one at that. In addition, the aeroplanes filled the unaccustomed population with awe, while their daily delivery of instructions gave local commanders an impulse to action.

THE ORIGIN OF THE UNREST.

Early in January, riots occurred during the collection of land revenue in the neighbourhood of Mirpur and Chaomukh, both in the predominantly Mohamedan *tahsil* of Mirpur. Kashmir State forces were moved into the area and a lull followed. During the last week of the



month, however, serious disturbances took place at Sukchenpur, Ali Beg and other places on the Upper Jhelum Canal in Kashmir territory. Simultaneously Kotli was attacked by large mobs, and unrest spread towards Poonch and into the Kotli, Rajaori, Naoshera and Bhimbar *tahsils*, in all of which the majority of the population was Mohamedan. At this stage Imperial troops occupied the Mirpur *tahsil*, releasing the

State forces for operations in the interior. The Royal Air Force also commenced to carry out reconnaissances over the disturbed area.¹

At this time the situation was believed to be as follows. Owing to the presence of Imperial troops in Mirpur, the Kashmir Darbar expected no further trouble in that *tahsil*. On the other hand, trouble was spreading rapidly North and East into the interior. Kotli was besieged, and a morning air reconnaissance had reported the South-East corner of the village to be on fire. It was stated that Poonch, Rajaori and Bhimbar were in grave danger, that the country round Rajaori was out of hand, and that trouble was expected in outlying towns of the Riasi and Akhnur *tahsils*. Because of their evenly balanced proportions of Hindus and Mohamedans, the Jammu and Rampur districts were considered safe.

In spite of the alarming rumours prevalent, it appeared that the insurgents consisted chiefly of the hooligan element, but many of the less level-headed Mohamedans, carried away by the general excitement, had joined forces with them. Their armament was negligible, consisting at most of swords, axes and a few old guns or rifles; this was sufficient, however, to deal with the rural police who possessed only one musket per station. On the other hand, a platoon of infantry could be expected to hold its own against even the largest mob.

THE MILITARY SITUATION.

The following table shows the approximate distribution of the State forces on this date. In addition, there were two weak infantry battalions in the Kashmir Province, and a mountain battery and one battalion in Gilgit. None of these were available for operations in Jammu Province or Poonch.

Mirpur <i>tahsil</i>	2 troops cavalry.
	3 companies infantry.
Kotli	1 platoon.
Naoshera	1 troop.
	1 platoon.
Rajaori	2 troops.
	2 companies and 2 platoons.
Bhimbar	1 platoon.
Riasi	1 platoon.
Jammu Cantonment	1 squadron and 1 troop.
	2 mountain batteries.
	3 companies.

¹ On the 31st January, the writer was ordered to report to the Resident in Kashmir at Jammu, arriving there in the afternoon. Thus he was fortunate in being able to obtain first hand information of events as they occurred, and to watch the development and final success of the measures taken to deal with them.

There were, also, police detachments in each *tahsil* but in view of the existing situation they were of little value.

The area affected consists of a jumbled mass of hills, varying in height from between three and four thousand feet along the Indian border to between fourteen and fifteen thousand feet in the Pir Panjal, North and East of Poonch. The Poonch River in the West, and the Tawi River in the East cut through the hills, and their main and tributary valleys are the main lines of communication of the country. The population is concentrated along these narrow valleys, which are considerably cultivated in small terraced fields common to the hilly districts of Northern India. The hills are covered with jungle or forest up to the snow line, and are sparsely populated by Gujar shepherds or woodcutters. Weather conditions during early February are generally unsettled with rainstorms or, above six or seven thousand feet, heavy falls of snow.

The communications of the country are primitive. A cart track runs from Mirpur to Kotli via Chaomukh, but the majority of the tracks are fit only for pack transport. There are no open spaces on which Service aircraft could land and, during February, flying conditions are far from favourable. Poonch, Riasi, Akhnur and Mirpur are in telegraphic communication with Jammu, but these places are all some two days' march from the centres where unrest occurred. Local transport, on which the State forces depended largely, is limited, and consists of bullock-carts, pack-bullocks or mules and camels.

Thus, by slowing down the movements of the State forces, the difficulties of the country initially favoured the insurgents. On account of the simple requirements of the troops, however, these conditions did not affect operations as much as would have been the case had highly organized regular troops been employed. On the other hand, the nature of the country confined the spread of disaffection to the populated valleys and restricted the area to be dealt with, thus facilitating operations. A glance at the sketch map will show how it was possible to forecast the course of events. From the Mirpur *tahsil*, the trouble had to run either East along the edge of the hills towards Bhimbar, or North by the valley of the Poonch River and its tributaries to Kotli, and thence towards Poonch or Naoshera. From the latter it could also spread by the Tawi valley to Rajaori, or towards Riasi and Akhnur. In consequence, Poonch, Naoshera and Kotli were the important strategic centres. Although the country round Rajaori was disturbed, its isolated position at the head of the Tawi valley made it unsuitable as a base for operations, but it will be referred to later.

THE OPERATIONS.

In view of the latest developments in the situation, on the evening of 31st January it was decided to redistribute the State forces. Mobile columns, of approximately one troop and one company each, were to be based on Poonch, Naoshera and Kotli, which places were also to be provided with small garrisons. In addition, Rajaori, Riasi, Akhnur and Bhimbar were to be held by forces capable of finding a garrison and a small mobile column to patrol the adjacent country. Owing to the difficulties of inter-communication and of transport, it was realized that this re-organization could not be completed in less than six or seven days. Once the State forces had taken up their new positions, however, they would be so located that they could deal promptly with any likely outbreak. Provided that there was no great deterioration in the situation during these six or seven days, it was considered that the available forces would be sufficient to restore law and order in the disturbed area. The Darbar issued the necessary orders by telegraph and runner on 1st February, and it was hoped that the troops would be ready in their new positions on the 6th. The period 1st to 6th February was, therefore, of critical importance, especially as the Mohamedan feast of "Id" was due to fall on the 8th.

In order to improve inter-communication between headquarters in Jammu and the various detachments of troops, arrangements were made by the Darbar for the purchase of a number of portable W/T sets from a firm in Lahore. Unfortunately these did not arrive in time to assist operations. The Government of India was also asked if the Royal Air Force might help the State forces by dropping and picking up messages, in addition to reconnaissance. Permission to drop messages was obtained but, owing to adverse low-flying conditions, it was decided not to attempt picking up. On the 3rd or 4th February, a flight of Army co-operation aircraft replaced the single machine previously stationed at Jhelum and, thereafter, orders and messages for dropping were sent there overnight by courier from Jammu. With the permission of the G.O.C.-in-C., Northern Command, urgent orders could also be transmitted by telephone. In addition, the Royal Air Force later evolved a simple code of ground signals, by means of which the Kashmir troops were able to render short reports to aircraft.

Owing to heavy rain on 1st February, there was no air reconnaissance. Telegrams reported Kotli still besieged and Poonch in a state of panic, while others from non-official sources gave alarming descriptions of the treatment of Hindus and their property in the disturbed area. A column of one troop and two companies, under the command of the Finance Minister with the Inspector-General of Police as assistant, left the Mirpur tahsil for Kotli. These officials were both British.

Air reconnaissance on 2nd February reported three villages in the Kotli area, and two in the Mendhar *tahsil* of Poonch to be burning—an important confirmation of the predicted course of events. A detachment of infantry left Mirpur for Naoshera with instructions to investigate a report that many Hindu refugees were hiding in Khambah Fort, and to evacuate them if necessary. The 3rd was a quiet day, the Royal Air Force only reporting troops in Kotli and abnormal crowds in Poonch city. Later the Finance Minister telegraphed, via Mirpur, that his column had reached Kotli unopposed, but that he hesitated to advance on Poonch with the force at his disposal. He stated that, between 26th January and 1st February, the Kotli garrison had beaten off three attacks, inflicting considerable casualties. On this date the Royal Air Force began to drop messages and orders from the Darbar and, as a result, a greater measure of control over the operations was instantly obtained.

On 4th February, air reconnaissance reported large crowds in Poonch, and distress signals were displayed on the camping ground there. Two villages were burning in the Kotli *tahsil*, but everything appeared quiet elsewhere. The Finance Minister was instructed by air message to proceed to Poonch immediately, leaving a garrison of two platoons in Kotli. In view of the punishment inflicted there, and because of the salutary effect of the passage of the column through the area, it was considered that this detachment was sufficient to maintain order and to keep open the road to Poonch. Details of the disturbances began to arrive, and the Darbar received numerous alarming telegrams from Hindus outside the State. These latter gave exaggerated accounts of outrages and demanded vigorous action to restore order. At the same time, Hindus in the areas of the Jammu district near the British border commenced to show alarm about the approaching "Id," and appealed for protection. Such reports and appeals naturally had a disturbing effect on the Darbar, and were a continual inducement to them to change plans and to divert troops to investigate each of the many incidents reported. Nevertheless, they adhered to their plan in a praiseworthy manner, realizing that the redistribution of the State forces, and the subsequent action of the various columns, would bring the quickest relief to the terrified Hindu population. Appeals for protection during "Id" were economically and satisfactorily dealt with by instituting a system of motor lorry patrols. Each of these consisted of a section of infantry carried in a hired Chevrolet truck.

Trouble was expected on Friday, 5th February (Juma-ul-Id), and did occur in the Kashmir Province, but everything passed off quietly in the Jammu Province and Poonch. The Darbar continued to receive

alarmist telegrams, but the Royal Air Force reported that the column from Kotli was approaching Poonch. There was no sign, however, of the movement of the detachment from Rajaori to Naoshera, where it was urgently required. The troops from Mirpur arrived at the latter place, but they were too few to deal with the surrounding area. They had visited Khambah and had found refugees there who, however, refused evacuation and demanded local protection. During the night a telegram was received from the Finance Minister, stating that he had arrived in Poonch at 8.30 p.m. with one troop—shades of Antwerp! Having no First Lord of the Admiralty, Kashmir had employed the Chancellor of the Exchequer! He reported that Poonch was quiet, and that his infantry and transport would arrive early next morning. By doing so they covered some thirty miles in less than twenty-four hours—no mean feat with pack transport.

Kotli and Poonch were now secure, but the situation in the Rajaori-Naoshera country remained obscure and gave cause for anxiety. On 6th February, the Darbar received a belated message from the *Wazir Wazarat* (Deputy Commissioner) at Rajaori, which explained matters. He gave it as his opinion that the orders, issued on the 1st, could not be carried out because of the state of the surrounding country. He advised that the mobile column should be based on Rajaori instead of Naoshera, and that it should be increased to the strength of a battalion. During the three previous days, the Royal Air Force had reported no disturbances in Rajaori or its neighbourhood, so it was assumed that the message was due to nerves. In consequence, the commander at Rajaori was ordered by air message to proceed to Naoshera without further delay. The Darbar also issued instructions to its civil officials that they were not on any account to interfere with the execution of orders emanating from the headquarters of the State forces in Jammu. These messages had a marked effect on the course of later operations. It impressed State officers, civil and military, with the fact that their action, or lack of action, was continually observed and reported on from the air.

The air reports of 7th February were satisfactory. In Poonch large crowds were watching troops drilling on the camping ground, two companies with transport were seen moving off from Rajaori, and all else was quiet. The Darbar continued to receive alarmist reports from unofficial sources. Owing to rumours of a grave situation at Naoshera, it was decided to order the detachment from Rajaori to push on to Naoshera that night. Once again the Royal Air Force gave their invaluable assistance, dropping the message on the column some sixteen miles North of Naoshera. Poonch was reported quiet, and the Finance Minister stated that, so far, unrest was confined to the Southern *tahsils*

Air reconnaissance on the morning of 8th February again reported all quiet. The Rajaori detachment was in camp at Naoshera, having covered some thirty-one miles in twenty-four hours. Thus the redistribution was complete on the most critical day and, henceforward, the State forces were in a position to control the disturbed area. From now onwards the various columns moved continuously through the country round their respective bases. They arrested ringleaders, recovered stolen property and evacuated refugees, and the situation improved steadily. These operations were generally successful, and little opposition was encountered except in the area between Naoshera and Kotli. There the troops had to resort to force on one or two occasions. Inter-communication was improved by the establishment of V/T between Naoshera and Jammu, through one transmitting station. This was organized by the O.C. Naoshera, on his own initiative. By the middle of the month conditions were practically normal, and the assistance of the Royal Air Force was dispensed with. Military operations ceased as such, and the problem became one of re-establishing the civil administration.

The all reports of the British in Poonch taluk towards were watching troops moving on the camping ground, two companies with transport were seen moving off from Rajouri, and all the was quiet. The Poonch continued to receive alarmist reports from unconfidential sources. Owing to the state of a grave situation in Jammu, it was decided to order the withdrawal from Rajouri to push on to Naoshera that night. Once again the Royal Air Force gave their invaluable assistance, dropping the message on the column some sixteen miles North of Naoshera. Poonch was reported quiet and the British Minister stated that so far interest was confined to the Southern taluk.

"THE WEAPON OF THE WEAK"

By ADMIRAL SIR HERBERT W. RICHMOND, K.C.B.

IT is very generally accepted as a fact that needs no proof that the retention of the locomotive torpedo—the fixed torpedo or mine is a different question—and of the submarine, of which it is the only effective weapon, is essential for the security of the weak, or the weaker Powers. The submarine is not uncommonly called "the weapon of the weak," and it is asserted that those Powers, called "weak," possessing the submarine or the torpedo, thereby render themselves secure against the "strong" Powers. With one blow, the inexpensive weapon of this David overcomes Goliath for all his shield and his armour and his spear like a weaver's beam.

In my opinion this is very far from being so indisputable an axiom as it is assumed to be. In the first place what is meant when the words "the weak" or "the weaker" Powers are used? Is there a category of "weak" Powers? If so, which are they, or what defines them; and are there certain of them which come within the embracing term of "the weaker Powers?" Some Powers are stronger than others. One Power—Great Britain—is, with one exception, the strongest of all. If that is so, all the remainder of the Powers in the world are the "weaker" Powers, and therefore, it may be argued, the retention of the submarine is indispensable for all of them.

It is not irrelevant to recall why this Empire has hitherto been the strongest Power. It is an association of scattered islands, each only able to communicate with the rest of the world and with each other by sea. Security of those roads is, therefore, as indispensable a condition to the security of each and all of those scattered islands as security of the railways, the roads, rivers and canals within the territory of a continental state is essential to its national life.

Because this has, until recent years, been recognised by the statesmen of this country, they have considered it essential that British strength at sea should be sufficient to ensure security on those sea roads. They have, therefore, provided the country with a navy, not only superior to that of any other State, but with such a degree of superiority as will

give reasonable assurance that any possible enemy can be successfully opposed should he try to break the communications in any vital area.

The dependence of this scattered empire of islands upon secure movement has been recognised by foreign Powers, almost without exception, and as a corollary, the justice of our claim to the possession of superior force at sea has likewise been admitted. No other country is in a like position. No other nation or empire is dependent for its national existence upon the flow of a commerce that has no other channel than the sea; a commerce that is carried to so high a proportion in its own bottoms, and that has to pass through waters in the close neighbourhood of potential opponents; or whose only means of affording military help to its several communities is by sea transport.

Britain is thus compelled by the necessities of her very existence to be the strongest Power at sea. All other Powers (with the exception of the United States who represent themselves as equally and vitally dependent) are therefore, in actual fact, "weaker" Powers: and among these in turn there are stronger and weaker Powers.

According to the dictum that the submarine is indispensable to the security of all these "weaker" Powers, every Power in the world (except the United States) needs the submarine for its security against Britain. But there is no better test of a theory than the facts of experience. The submarine came into effective existence less than twenty years ago. What Power was in any state of insecurity before then in consequence of having no submarines, though possessing a fleet of battleships and cruisers less than that of this country?

It will be sufficient to examine the conditions of those Powers with which this country had the most political friction. From the second decade of the nineteenth until the beginning of the twentieth century, those Powers were Russia and France. The British fleet, although it passed through a period of grave political neglect—largely the result of incorrect strategical thought—was maintained on the principle of equality in battleship strength with those two Powers—the two next strongest. Was either of these "weaker" Powers, Russia or France, ever in danger from this country throughout that long period of some eighty years? Or was this country, at any moment when it possessed this superiority, in a position to impose its will upon one of them alone in any vital matter? The answer is perfectly plain. She was not. She was able to guard her own territories; she was in a position to prevent the annexation or occupation of strategical points whose possession in the hands of other Powers would prejudice her own security—Egypt, for example; she could give a sufficiency of protection to the sea roads by which her trade travelled to prevent an isolation that would have

been fatal. But she could not, even then, have prevented considerable losses to her trade; indeed, even in the days of her greatest superiority, she could never prevent that.¹ But this loss, serious as it would have been, would not, in all probability, have been sufficient to bring about her surrender.

But she could not, for all this defensive strength, dictate a demand to either of those Powers. "Weaker" though they were at sea, they were strong enough to resist and to deliver counter-blows, though there were no submarines at their disposal. The only form in which Britain could have attempted to employ the force she possessed with the object of bringing pressure on either of those weaker Powers would have been by cutting off their external communications. Two methods could have been attempted: "sporadic" action or blockade. No amount of sporadic action—the capture of enemy merchant ships—could have forced either Power to surrender some vital claim. Not more than fifty per cent. of the external trade of either proceeded by sea, and of that fifty per cent. more than half of each was carried in neutral bottoms, secured from capture, after 1857, by the Declaration of Paris. No great Power is forced to surrender by the temporary loss of less than a quarter of its external trade. This country's imports were reduced by a third in the late War, yet she survived; in the war of 1793-1815 the seaborne trade of France was almost annihilated, but her external commerce continued—with the continental markets; in the Russian War of 1854-55, Russia was practically unaffected by the loss of her trade in her own bottoms.

The only way by which a complete isolation by sea of either country could have been brought about would have been by the use of blockade. It is within the bounds of possibility, though one cannot but feel that it is doubtful, that an effective blockade of all the Russian ports would have forced Russia to a peace. Lord Clarendon believed it would. But it would have been quite impossible, even with her superiority of between thirty and forty per cent. over France, for Great Britain to blockade France. She might have been able, as she was in the past, to blockade a particular port; but a "blockade of France" was outside the range of practical possibility, and was never attempted. The most extensive blockade we ever proclaimed was that of May, 1806, which only included the northern coast. Only persons supremely ignorant of the problem could imagine such a blockade practicable in the face of the French Navy of those times, for weaker though it was, it was strong enough to prevent equal or superior British fighting forces from being maintained

¹ In each of three of the great wars of the sailing period she lost, in the course of eight years, approximately the same number of merchant ships—about 3,000.

in such situations, and so continuously, as the effective conduct of blockade, to be recognisable in international law, would have required. No submarines existed, yet this security was undoubted.

In the face of facts so undeniable the assertion that the abolition of the submarine would jeopardise the security of the "weaker" nations *vis-à-vis* a stronger England is untenable. On the other hand, the security which France enjoyed, if ever it was supposed that she was threatened by British policy, rested upon the possession of a battle fleet, adequate in strength for the purpose. But when the two greatest maritime Powers elected to stabilize the size of the battleship at its present tonnage, and to cut down the number allocated to France, if she should choose to build similar large vessels, her position was altered. A fleet of five¹ monsters would be of small use to her; it would possess neither strategical flexibility nor power of concentration, while the loss of one ship out of five would be a serious concern. It is not surprising, therefore, that she turned to submarines, for the same expenditure would give her greater value. It is not that the submarine was really the better weapon for the weaker Power, but that, being denied the possibility of possessing a fleet of battleships which had hitherto been the foundation of her security at sea, she was seeking another weapon and other methods.

If we should return to the far smaller battleships of the times to which I have referred—ships of 8,000 or 10,000 tons—and agree to a different quantitative distribution, by which she would possess a number that had some utility, she would be under no necessity to insist upon the need of submarines for her security.² Indeed, it is possible that her communications with Africa would be more secure if there were no submarines to interrupt them.

The argument has, so far, been confined to France and Russia; but the same conclusions will be reached if other of the greater Powers, weaker though they are than England, are similarly considered. Austria was "weaker" at sea than Italy, but Italian sea power could not have compelled her though she had no submarines. Spain was "weaker" than the United States, but submarines would not have rectified the difference. The American operations in Cuba might have been hampered by submarines but, inasmuch as the Americans would have been in possession of small surface craft to deal with them, the eventual conquest of Cuba would have been achieved.

¹ Under the Washington Treaty, France is allowed 175,000 tons of capital ships, each of which may not displace more than 35,000 tons. Actually, she maintains nine smaller battleships.

² I have outlined a scheme of allocation in "Economy and Naval Security," page 135 *et seq.*

In face of the great army which is a principle of Japan's national life, invasion is impossible, even if no submarines existed. No Power, even if decisive victory at sea were obtained—a highly improbable contingency—could find the transport for, and maintain, an army of the requisite size. Submarines are not needed to prevent blockade. Japan's geographical position and her surface fleet are her security. They cannot defend against sporadic attack. But they *can* attack her Asiatic communications and divert, from other important duties, her flotillas. We know well, from long experience, the diversionary embarrassment caused by sporadic attack.

Passing from these "weaker" Powers to others still weaker, who may more logically be entitled to be called "weak," there are, it would seem, several, from Greece to Latvia, who are convinced that the submarine is necessary for their security, as the antidote to that sea-bully, the battleship of the greater Powers. For a small sum of money, so it is argued, a submarine, or several submarines, can be built, which will blow up the battleship and defend their coasts against invasion or their ports against bombardment. But is this so? Is any "small" Power, when it comes to practical politics as opposed to theoretical catchwords, dependent for its security against the greater Powers upon its sea forces? If history tells one anything it is that the small Powers owe the continuation of their independent existence not to their armaments—except in so far as they are an expression of their readiness to do something for themselves—but to the jealousy that naturally exists between those great Powers. No great Power will willingly see one of the small ones swallowed up into the territory of another great Power. What has kept Belgium from absorption by France or Germany? Not the Belgian fighting forces, but the fact that England has felt so vitally interested that the Scheldt and Antwerp should not be in the hands of a naval Power. "I am ready to say," said Pitt on 3rd February, 1800, "that to leave that territory in the possession of France would be obviously dangerous to the interests of this country, and is inconsistent with the policy which it has uniformly pursued at every period in which it has concerned itself with the general system of Europe."

Again, what has kept Portugal from becoming a province of Spain; not the Portuguese army and navy, but the British interest in the preservation of an independent and friendly Portugal, with Lisbon safe from the hands of a potential enemy. On the occasion of the Prussian threat to conquer and annex Denmark, Lord Salisbury wrote: "As the first of commercial Powers she (England) can never suffer the highway of nations to fall into hands that may close it. The Sound, the Bosphorus, the Straits of Gibraltar, the Isthmus of Suez and the Isthmus

of Darien must never be subject to the will of a great Power. Therefore it is against the policy of England that Denmark should become the dependency of Germany." England, however, refrained from supporting Denmark, and Denmark's own strength did not avail to avert the shearing off of two of her provinces. Submarines, had they existed, would not have altered the result. A maritime Prussia which coveted a Denmark would seek to acquire a flotilla of strength sufficient to prevent effective opposition to the transport of its armies into Denmark.

There are certain lesser Powers in the North of Europe who similarly believe that submarines will give them security against the battleships of the maritime Powers. But, so long as submarines exist, those maritime Powers will be forced to possess the answer to them—the small fast surface craft which we now call the "destroyer"; and to possess them in numbers greatly in excess of those of the "weak" Powers. It would be wholly unnecessary to send battleships into waters defended by submarines. There are no battleships in them to fight, and the fleet in the Baltic would be composed of the small craft in superior numbers to those of the "weak" Power—vessels which dominate the submarine and are far better adapted to the purpose in view. There would be no battleships for the submarines to blow up, and, in fact, they would have called into existence the very craft which render themselves ineffective.

If we turn to actual experience the same conclusions appear. Greece, in 1898, wished to invade Crete; but the battleships of the Powers restrained her. Is it imagined that if she had possessed submarines she would have been able to do what she wished? Certainly she would not; for, instead of battleships lying off Candia or in Suda Bay, there would have been flotillas of destroyers and small craft commanding the approaches to Cretan harbours or the exits from the harbours in Greece. Nor, in 1890, when Major Serpa Pinto's activities on the Zambesi brought Portugal into diplomatic collision with this country, would submarines have enabled Portugal to escape from the restraint which the stronger sea Power was able to impose. When Von Bülow considered "should we force smaller neighbours to join us?" it was not *their* strength that made him dismiss a policy of annexation, but the opposition he would meet from the greater Powers.

It is said that submarines afford protection against bombardment at a lesser cost than fortifications. But submarines neither prevented, nor could have prevented, the bombardments of Philippeville, of Odessa, Sevastopol, Theodosia or Novorossisk, of Hartlepool (where there were submarines but they could do nothing), of Scarborough, of Broadstairs, Madras, Ancona or Porto Buso. Such bombardments can only be dealt

with effectively by shore artillery. Sustained bombardments—as distinct from mere runaway knocks—may undoubtedly be hampered by submarines but, unless there are no shore defences to keep the bombarding ships at a distance, retard their fire and hamper their aim, the ships could close—sometimes into shoal waters where the submarines cannot operate for want of depth—and do the desired damage long before the submarine defence could get into action. Their existence would not do away with the need for forts. Certainly, too, submarines hamper a landing—we have experience of that. They force transports to have harbours secured against their attack, and these may be at some distance from the objectives of the troops. They act as an extension of the gun defence; they add to the difficulties, but by themselves they do not constitute a defence. Forts are also necessary.

If the submarine were, what it is not, an invulnerable and irresistible instrument of war, the claim that a "weak" Power might find security by its use against a strong Power might have some reason in it. But it is neither the one nor the other. The small surface vessel is its antidote, and though the submarine may drive the battleship away from certain waters, even as the gun in the fortress kept the old ships-of-the-line at a distance, still the light craft can go into those waters and take control. The submarine can inflict losses on trade, and it may be thought that the threat of such losses would deter a great Power from bullying a small one; but that threat has never yet deterred this country from pursuing her policy. The privateer in its many forms was almost as great a threat—it did great injuries; but those injuries could be kept within bounds, and the fear of them, the knowledge that they would occur, did not prevent us from acting in the manner our policy demanded. So long as the submarine exists, those Powers which have great interests at sea and are, therefore, to use the old term, the Maritime Powers, must furnish themselves with vessels capable of mastering it. They cannot afford not to do so. To be sufficient for this purpose the number of those vessels must be greater than that of similar craft possessed by the "weak" Powers. Against them the submarines, whatever they may hope to do against the great battleships, can do but little offensively, and the defence submarines provide is illusory. They will have no battleships to destroy, because the fleets sent to conduct the operations will not be composed of those great ships but of small craft, adequate in size, appropriate in character, and superior in numbers to their opponents.

THE GERMAN OFFICIAL ACCOUNT OF THE SUBMARINE WAR ON COMMERCE

By CAPTAIN G. P. THOMSON, O.B.E., R.N.

CONCURRENTLY with the German Official History of the War at Sea (*Der Krieg zur See*), there is now being compiled a complete history, based on official records, of the German submarine campaign against merchant shipping. The work has been entrusted to Rear-Admiral Spindler who was connected with the submarine Branch both before and during the War. The first volume of this series,¹ which has recently been published in Berlin, covers the period from the beginning of the War until 22nd February, 1915, when the Kaiser gave his consent to the sinking without warning of allied merchant ships in the waters around Great Britain and Ireland.

The legal aspect of the U-boat war is discussed at great length—on the whole, without undue bias or exaggeration. Indeed, the book gives clear evidence of the author's intention to present facts as they were, for he makes no attempt to conceal the literally astounding absence of liaison between policy and strategy, or the lack of common doctrine amongst the officers responsible for the conduct of the naval side of the War. But perhaps the worst offenders of all were the commanding officers of the submarines and their Captain (S), since it was they who conceived the idea that the few U-boats available in those early days were capable of paralysing Britain's oversea trade. For instance, one submarine off Anvil Point and another off the Farn Islands were completely to destroy the trade of the Thames!

In a chapter on the origin and development of the German Submarine Service, the author endeavours to prove Germany's complete innocence of any pre-war intention to use submarines as commerce destroyers. At the beginning of the war there were fourteen seagoing submarines with petrol engines capable of operating for five days off the East coast of England. There were also ten recently completed diesel engine boats with a wide radius of action and they were the only ones fit for commerce warfare, since England's vital imports came via the Irish Sea and Western approaches. And these ten had not been thoroughly tried out

¹ "Der Handelskrieg mit U-Booten." Vol. I, compiled by Rear-Admiral (Retd.) Arno Spindler. (E. S. Mittler & Sohn, Berlin). R.M.8.75.

nor were their capabilities known. Is this not sufficient proof that U-boats were built for purely naval operations?

Yet, in another passage, we are told that the petrol engine had proved so unreliable that the building of submarines was only commenced systematically and in large numbers after the advent of the diesel engine at the end of 1910. Ten had been completed by the beginning of the war, seventeen more were under construction and a goal of seventy-two diesel boats was aimed at. It seems more than likely, therefore, that the late arrival on the scene of the diesel engine was the true reason for the lack of plans for a U-boat war against trade.

Very soon after the War started, however, German submarine officers began to talk about the necessity for sinking enemy ships without warning on the grounds that the enemy battleships could not be got at, whilst it was impossible for U-boats to carry out commerce warfare on the surface with much success. Captain Bauer (now Admiral retired) had frequently referred to the matter in his conversations with Von Ingenohl, the Commander-in-Chief of the High Sea Fleet, who objected to the proposal from a legal and humanitarian point of view. When, however, Captain Bauer officially proposed early in October, 1914, that English merchant ships should be sunk at sight unless England lifted the minefield off the Dover Straits, "laid in an international fairway contrary to the Hague Convention," the Commander-in-Chief felt obliged to forward the proposal to the Chief of the Naval Staff. Von Pohl at first considered that such a drastic measure was not yet justified, but on 2nd November, when Britain declared the whole of the North Sea a war area and restricted neutral shipping to a fixed route under her supervision, he at once ordered the Naval Staff to examine the possibility of blockading England with mines and U-boats and, without waiting for the result of this examination, also proposed to the Chancellor that such a blockade should be instituted forthwith, as a reprisal. "This latest action, and her abandonment of the Declaration of London and the generally accepted laws of contraband, proves that England intends to starve the whole German nation, without consideration for neutrals."

From this time onwards there appears to have been complete lack of co-operation and much confusion of thought amongst the responsible authorities. Von Pohl continued to talk about a blockade of the coasts of Britain and France after he had obviously been persuaded by his staff that such a blockade could not be effectively maintained, and that what was required as a reprisal for the British violation of International Law was the declaration of a war area in which the U-boats were to have freedom to sink enemy merchant ships at sight. Whilst he realised the impracticability of submarine officers being able to distinguish

enemy from neutral, he considered that six or seven submarines stationed off the coasts of Britain and France would be sufficient to frighten away shipping of all nationalities from these waters. The Naval Staff were less optimistic and asked for ten boats in the Irish Sea and Western approaches alone, to achieve the desired results. Incidentally, this meant the employment of 50 per cent. of the entire U-boat force in "blockade" positions, when it was in fact only practicable to have 25 per cent. at sea at any one time. Von Pohl wanted the "blockade" to begin at once. The Naval Staff on the other hand were opposed to this, and agreed with the Chancellor and the Foreign Office that the situation on the land front must first be made so favourable that there would be no chance of neutrals joining the enemy.

Captain Bauer's proposals, supported by the Commander-in-Chief, were on different lines. He suggested a genuine blockade of the principal English harbours by means of four U-boats stationed respectively off the Farn Islands, St. Albans Head, the Bristol Channel and the Irish Sea. A genuine blockade was essential if neutral protests were to be avoided, since otherwise visit and search would be required. The very essence of a blockade, he insisted, was to attack enemy and neutral ships impartially.

Admiral Tirpitz, the Secretary of State for the Navy, held the same views as Captain Bauer, but wished to defer the blockade until more submarines became available, and meanwhile to concentrate all efforts in preparation for it.

By the beginning of January, 1915, however, both the Naval Staff and Admiral Tirpitz appear to have been greatly influenced by the desirability of stopping the import of the Argentine wheat crop due in England in February. Public opinion, moreover, was pressing strongly for the "starvation of England by means of U-boats." Whatever the reason, the Naval Staff were now strongly in favour of beginning the U-boat war in the following month, whilst even Tirpitz who had begun to fear the power of the politician, no longer advised delay. This left only the opposition of the Chancellor and the Foreign Office to be overcome, a victory which Von Pohl achieved on 1st February.

The author confesses his inability to explain how it happened. It appears that when Von Pohl was appointed Commander-in-Chief of the High Sea Fleet in place of Von Ingenohl, after the Battle of the Dogger Bank, he determined to make a last effort to get the matter settled before he left Berlin. According to Zimmermann, the then Under Secretary for Foreign Affairs, who was present at this final interview between the Chancellor and Von Pohl, the latter gave an assurance that U-boat commanders would be able to differentiate between

enemy and neutral ships and that there were sufficient submarines to bring England to her knees. This account, as the author rightly points out, seems very far from the truth, since Von Pohl had always emphasized the impossibility of distinguishing neutral from enemy. More likely is it that the Chancellor was himself feeling the strain of running counter to public opinion, and that he let himself be persuaded by Von Pohl's bald statement that neutral protests need not be anticipated—a statement based on his conviction that neutral shipping would automatically cease with the sinking of a few steamers, without trace, in the early days of the campaign.

Three days later, Von Pohl, who had now assumed command of the Fleet, seized the chance of obtaining the Kaiser's approval whilst accompanying him in the barge on a visit to the "Derfflinger." Both Tirpitz and Von Müller, Chief of the Naval Cabinet, who were also present in the boat but knew nothing of the recent interview with the Chancellor, were completely ignored. As to the Kaiser—who claimed supreme authority over military and naval operations—the fact that he was able to decide this momentous question in the stern sheets of a picket boat, is another illustration of the lack of thought given to the political and military considerations affecting the campaign.

Von Pohl thus at last got his way and the notorious Declaration of a war area, dated 4th February, was issued by the German Government without further delay.

Protests from neutrals were not long in arriving. The firm tone of the American note, intimating that unless a blockade was declared and effectively maintained, belligerents had only the right of visit and search, caused consternation in political circles and further acrimonious discussions between the Chancellor and the Naval Staff. The new Chief of the Staff, Admiral Bachmann, who had disagreed with his predecessor's views on the U-boat war, now considered it was too late to draw back and insisted that all merchant ships should be sunk unless they were definitely recognized as neutral. "This is essential for success in view of the outrageous English practice of flying neutral flags. Officers of the Merchant Marine have been appointed to submarines to assist in identification, and as the routes of American and Italian ships—the only neutrals that matter—are known, there should be little chance of regrettable mistakes."

With considerable hesitation, the Chancellor eventually agreed to the U-boat commanders being freed from all restrictions subject to their using the utmost caution before sinking ships flying the American or Italian flag. This compromise was approved by the Kaiser, and four U-boats accordingly sailed on 22nd February to begin the campaign

in earnest, and with a heavy political responsibility placed on their commanding officers.

In this manner was launched the first U-boat campaign—the child of ignorance, confusion of thought and complete lack of co-operation amongst those responsible for the higher direction of the War. How different, says the author, were the methods of England, who also had to decide between military and political advice as regards her contraband measures which brought her into conflict with the U.S.A. With the greatest care and without haste she carried out her schemes for the annihilation of Germany's trade and never exceeded the limits which her political advisers thought desirable.

Three days later, Von Pohl, seized the chance of obtaining the Kaiser's approval whilst accompanying him in the voyage on a visit to the "Lüthgen". Both Tiesitz and Von Miller, Chief of the Naval Cabinet, who were also present in the boat but knew nothing of the recent interview with the Chancellor, were completely ignored. As to the Kaiser, who claimed supreme authority over military and naval operations—the fact that he was able to decide this momentous question in the stern sheets of a pocket boat, is another illustration of the lack of thought given to the political and military considerations affecting the campaign.

Von Pohl thus at last got his way and the notorious Declaration of a war area, dated 1st February, was issued by the German Government without further delay.

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the U-boat commanders being freed from all restrictions subject to their using the utmost caution before sinking ships flying the American or Italian flag. This compromise was approved by the Kaiser and four U-boats accordingly sailed on 2nd February to begin the campaign.

AMERICAN TRANSPORT IN THE WORLD WAR

By LIEUTENANT-GENERAL SIR TRAVERS E. CLARKE, G.B.E., K.C.B.,
K.C.M.G.

SYMPATHY with him in his task of presenting a record of an organization which never actually succeeded in getting into full working order before the Armistice is the governing feeling after a study of Colonel Wilgus' book.¹ It is an honest record, and aims to be comprehensive and to give a complete picture of the chain of authority at various times between the Commander-in-Chief and the Transportation Services. The reader can, with the exercise of a little patience, trace the varying methods which were tried in order to establish the sequence of authority within the Transportation Service, and to link it up with the Service of Supply and with the High Command. But it must have been a trying task for the author, Colonel Wilgus, who had appreciated from the first the true nature of the task and had a clearer view than most of his colleagues of the means necessary to carry out the task, to set forth step by step the various vacillating developments.

The first stage in the story was the appointment in April, 1917, of a U.S.A. Military Railway Commission to England and France, whose chief mission was to study what assistance the United States could give in material and technical man-power to the railway services of the Allies in France. In England, it is recorded, this Commission studied the then British system under which rail transport was under the control of the Director-General of Transportation. Observing in the field the British and the French systems at work, the American Commission was impressed by the superiority of the British. It recommended to the American Government the appointment of an officer to have charge of American transportation in France.

In June, 1917, the nucleus of an American Transport Staff was formed, with the author of this book at its head under the Chief Engineer Officer of the American Army. This nucleus staff recommended the adoption of a system much on the lines of the British of 1917.

¹ "Transporting the A.E.F. in Western Europe, 1917-1919." By Colonel William J. Wilgus, Director, Military Railways, A.E.F., Deputy Director-General of Transportation, A.E.F. (Columbia University Press, New York), 98s.

This was, in effect, sanctioned in July, 1917, then departed from by various stages and finally readopted at the close of the War. The first departure separated from the main railway organization the light railways in the front area, and also the responsibility for discharge of ships. Shortly after the American Commander-in-Chief revised this, and control went back to the conditions of July, 1917, and Colonel Wilgus was appointed Director of Railways. A few days after, this command was taken by Brigadier-General W. W. Atterbury, with the title of Director-General of Transportation, Colonel Wilgus remaining as Deputy Director. Then in December, 1917, another change in the system was made, by which, to quote the author, "the D.G.T. was deprived of power in the exercise of duties for which he was held responsible, and was made impotent in the zone of battle." In February, 1918, there was yet another change, the Transportation Service being placed directly under the Commanding General, Service of Supply, instead of the Commander-in-Chief. In March, 1918, still another change took place, and transportation was placed two removes from the Commander-in-Chief, and without authority either in the Advance Zone or in the execution of port and railway construction. By March, 1918, it is noted "there was great friction between the General Staff and the Transportation Service." Under the system of divided control there was bound to be! In June, 1918, Colonel Wilgus and a colleague sent in two reports, aiming at a better system. The reports were returned "without action." In August, 1918, there was some betterment in organization, but dual responsibility continued. Not until 12th November, 1918, the day after the Armistice, was the American Transportation Service given anything approaching an effective place in the general organization. The author could then record:—

"The end of the conflict on November 11, 1918, nineteen months after we entered the War, found the Transportation Service, therefore, in this position: Its Staff organization, barring the division of responsibility in the Advance Section and the assignment of railway and port construction and light railways and roads to other branches of the Army, had at last reverted, after many changes, to the admirable plan with which it had started in the summer of 1917, and its status had become that of an independent Corps of the Army. Its field organization, through the adoption of the company unit reporting to a technical commander of a Grand Division, was now suited to the peculiar conditions under which it must work. Its personnel, though rapidly becoming adapted to the situation, was inadequate for the task, both in numbers and often

in quality. Its facilities were in a backward condition, in particular those having to do with the ports, water supply and passing track extensions. Its rolling stock was unequal to the needs of the hour. The cumulative effect of all this was a gradual slowing down of the machine under a load that exceeded its capacity to carry. Trains were moving more and more sluggishly, cars were coming back from the Advance Section with increasing delay, and the unloading of ships was progressing faster than the ports could be evacuated inland. A crisis in transportation, thanks in the main to the faulty Staff organization and an unbalanced fleet of ocean carriers over which the Transportation Service had no control, was rapidly coming to a head when the enemy laid down his arms."

The bare record of the various changes in system is sufficient explanation for the degree of failure of the American transport system to carry out effectively the task with which it was entrusted. The task, in truth, was of such extent and such difficulty that, presuming a system within the Army giving to Transport its right place in the plan of campaign, and presuming a perfect Transport Staff, even a moderate measure of success would have deserved the highest credit. The American army worked under many crippling handicaps. Political obstacles to efficiency were in its case far greater than our Army—which had its own grumbles in this respect—ever had to face. It was dealing with a home government which was singularly sentimental and unpractical in outlook, and which cheerfully assented to the pleas to send man-power, and nothing but man-power, without considering the implication of those pleas, that the man-power was to be used largely as a recruiting pool from which exhausted units of the French force could be strengthened. Faced later with the direct issue of using American soldiers chiefly as recruits for the Divisions of the Allies, the American Government, quite naturally jibbed, but forgot that, in accepting the policy of concentrating on man-power, they had made that the only possible way to use their man-power with full effect. It was a matter of sheer impossibility to equip and maintain and administer in the field the numbers available.

In addition, the American army as regards Transport and Supply was in the position of coming in at the tail end of an exhausting campaign, when the resources of the French ports and the French railways were already taxed almost to the limit, and consequently had to make do with what was left. France is not a favoured country in regard to ports of entry. The British Army, though it had the prior call on what facilities were available, was more than once gravely embarrassed by

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lack of landing room ; and the accidental sinking of a munition ship in the Boulogne fairway was at one stage almost a more serious event than the loss of a great battle. The American army, with ports of supply scattered from Havre to Nice, was condemned to the use of long lines of French railway—such use as could be arranged after French needs had been met. To quote a French critic :—

“ American transportation, widely distributed over all of France from West to East and from South to North, had nothing in common with the means of transportation of the other Allies. While the French army was fed along its front by intensive currents, and in the remainder of the country by others generally light in volume and widely disseminated ; while the well-grouped English Army operated at a small distance from its base and concentrated its transportation facilities in one corner of France over—practically speaking—a single system of railways ; the American army installed its bases at nearly all of our ports and imposed on our railways the most extended routings over portions least prepared for the burden . . . portions that were less suitable for intensive operation than those at the front and also markedly less well equipped.”

Struggling with the difficulties which American politics and French politics had imposed upon them, and the difficulties consequent upon the natural features of the French coast, the American army authorities were prevented, as this volume shows, from making the best out of a bad position by their own differences of opinion and inability to decide upon a definite line of policy. There were controversies as to the “ militarisation ” of the civilian experts called in to help the Transport (Railway) Services. Should the civilian view or the military view prevail ? That was a constant question. We British are accused of failing in logic, and our American friends are rather proud of their capacity to take a “ businesslike ” view of problems. But we were never so illogical or unbusinesslike as to imagine that civilian experts brought in to help to prosecute a war should not be “ militarised.” War on land is a military job, and those taking part in it must be “ militarised ” for the duration of the job. The degree of success of a commander called upon to utilise largely personnel not trained as “ Regulars ” will depend a good deal on the intelligence and flexibility with which he employs them, but he is certain to fail if he leaves them civilians, and fails to “ militarise ” them.

Apart from this controversy as to whether the “ civilian ” or the “ military ” idea should govern in military operations, the effort to

evolve a sound Transportation Service was hindered by the rather curious pre-War American army system which divided transport between two Corps—the Quartermaster Corps, dealing with one section, and the Corps of Engineers with the other—and whilst the Quartermaster Corps controlled railway transport under peace conditions, the Corps of Engineers took over its control under war conditions. There were thus the rival claims of two Corps for control to be settled before a sound Transport policy could be evolved, and much of the vacillation shown is to be traced to this rivalry.

There is no hint in Colonel Wilgus' book that he has made himself familiar with the final British system of Transport, that of 1918. The 1917 system, under which the Director-General of Transportation (railways and ports) was directly responsible to the Commander-in-Chief, he had studied and admired to the extent of closely imitating it in his own recommended plans. It would be interesting to have his opinion on the last evolution of the British organization in which Transport and Supply (in their widest sense) of the Army, were put under one head, the Quartermaster-General, who was responsible to the Commander-in-Chief for co-ordinating every activity from the base to the trenches that had to do with the service of the troops. That system went far beyond anything he had struggled for, but was the logically consistent fulfilment of his ideals. Would he have welcomed it, or would he have considered it too "militaristic?"

When Transport has been brought under one control there is still the problem of co-ordinating Transport with Supply; how to develop sources and channels of Supply so that the burden on Transport is kept to the lowest possible load; how, in the last resort, to reduce Supply to the limit which Transport sets, in the manner least injurious to the efficiency of the troops. The American army, of course, encountered this problem, but never solved it satisfactorily. The most useful move, on the test of practical results, was the appointment as General Purchasing Agent in September, 1917, of that versatile genius, General Charles G. Dawes. His job was to get supplies of every nature and to get them where he could. Naturally, he was quickly aware that Supply and Transport were so closely interlocked that separation of them was difficult. Soon, as General Purchasing Agent, he was taking a strong line in the matter of Motor Transport: probably, if the War had lasted much longer, it would have found General Dawes with very much the same functions and powers as the British Q.M.G. Colonel Wilgus in his book does not inform us of this development and, as before noted, he is not apparently aware of the final shape of the British administrative organization in 1918. His final conclusions are:—

"Our experience in the World War, then, demonstrated beyond doubt that Transportation is the life of the Army. As such, it clearly deserves a place of dignity in the hierarchy in order that its advice in its own field may be listened to with respect, its authority made commensurate with the responsibilities it bears, and its officers educated in peace-time for the work that is to fall to them in war.

"To that end, the author ventures the opinion that the peace-time organization of the army should be identical with what experience has proved will be required in war, including within its scope an independent Transportation Corps with jurisdiction over construction and operation incident to rail and water movements, headed by a man of vision and initiative who has been trained in the art of Transportation. Under the guidance of such a leader, as the author sees it, should be a nucleus of officers from the Regular Army and civil life, who through actual experience to be gained in common in the peace-time handling of army rail and water traffic, may be fitted for command in an expanded force in time of war. Furthermore, it would seem obvious, from what has been told of the happenings in France, that in the field the head of the Transportation Service should be held responsible, and given commensurate authority, for the embarking, disembarking and movement of troops and supplies by rail and water within the territory of the Commander-in-Chief, to whom he should report direct, including the construction of the facilities necessary in the performance of those functions. There is indeed ground for the belief that all other means of transporting troops and supplies *en masse* by motor truck, aeroplane, *et cetera*, and therefore calling for co-ordination with rail and water carriers, should be incorporated in such an organization under a single head."

The last paragraph is somewhat timid. Taking British experience as a trustworthy guide—and the British Army in the last stage of the World War was far the most effective striking force in the field—it had come to be accepted that not only should all forms of transport be under the one head directly responsible to the Commander-in-Chief, but also that the same head should control Supply.

It is, to my mind, elementary that all Transport within the field of operation and on lines of communication must be under the one head, so that canals, main railways, light railways and road transport are fully co-ordinated. It is a logical sequence, since Transport and Supply are inseparably interlocked, that the same head should be responsible for both to the Commander-in-Chief. A great proportion of Supply is

for Transport, i.e., road-repairing materials and rail and road vehicles. The degree of Supply, and the sources from which Supply is to be drawn, must be governed by the Transport conditions. To give an illustration, which I am sure will have a popular appeal: when it was reported to be impossible under Transport conditions to keep up the supply of beer from home as an occasional comfort for our troops, it was found to be possible to arrange the overseas transport of the malt and hops and provide the water and the barrels from breweries in France.

Colonel Wilgus is, of course, right in his recommendation that in time of peace the American army should organize its Transport system in preparation for war—and, it might be added, for varying conditions of war. But he is mistaken, if that is really his idea, in thinking that this task can be undertaken by any civilian or semi-civilian organization which, when war breaks out, is to be called up—perhaps to argue about the degree to which it should be "militarised." The task, as regards land operations, is for the Staff of the Army, and only for the Staff. Every fact set forth in his book is an argument against the possibility of getting good results from any attempt at a semi-military, semi-civilian organization.

HIGH SPEED FLYING

By WING-COMMANDER A. H. ORLEBAR, A.F.C., R.A.F.

On Wednesday, 23rd March, 1932.

AIR MARSHAL SIR EDWARD L. ELLINGTON, K.C.B., C.M.G., C.B.E.,
Air Member for Personnel, in the Chair.

THE CHAIRMAN, in introducing the Lecturer, remarked that he was in charge of the High Speed Flight for the Schneider Cup contests in 1929 and in 1931. He was our greatest authority on the practical aspects of high speed flying.

LECTURE.

HIGH Speed flying research was first seriously undertaken as far as the Service was concerned when the High Speed Flight was formed in 1926 in order to compete in the Schneider Trophy contest for 1927. The aircraft available for special training at that time were various types which had been built to take part in previous tests, and had been flown by civilian pilots only. They were capable of about 240 m.p.h., and were, therefore, only a little faster than the modern Service types. Since then, the fastest level speed that has been obtained is about 400 m.p.h., which perhaps seems a fantastic figure for useful purposes at present.

However, in 1926, the fastest Service types could only do about 150 m.p.h., and since then Service speeds have advanced so enormously that it can well be argued that high speed research has not only already increased useful speed a lot, but also holds out a firm promise of further big development. Figures that seem freakish and fantastic to-day may very well become perfectly normal in a few years time.

In 1927 the training machines, such as the Gloster III, the Bamel on Floats, etc., were not new aircraft, and they were not in the same class, from the point of view of construction and airworthiness, as the Gloster IV and the "S5," which were built for the actual contest that year. Further, high speed flying was then entirely new to Service pilots. Consequently, there was little opportunity to investigate the possibilities and limitations of this very specialised type of aircraft. The actual racing machines were only delivered in bare time to find out

how to handle them under really good conditions, and as soon as the race was won the Flight was practically disbanded.

It was reformed for the 1929 contest, and was in much easier circumstances since the racers of 1927, which were available for practice work, made very fine training aircraft, and there was the previous experience to build on. From that time up to the contest last year the Flight remained in being, and continuity of experience was maintained with the result that it was possible to discover at least some of the limitations of the machines and to do some fairly exhaustive tests on them.

The Schneider Trophy contest was instituted for seaplanes, and the only stipulation made in the rules apart from the test of speed was, interpreted generally, that the aircraft should prove that it could take off, alight and move about on the water in safety. Originally the rules decreed that the contest should take place in the open sea, but by common consent this has been rather loosely interpreted.

The reason that seaplanes have outstripped all other types of aircraft in the quest of speed is, that top speed can always be increased by allowing the landing and taking off speeds to be high, and the big areas of reasonably flat surface necessary for these can only be found on water. Even apart from the handicap under which land aircraft labour in respect of big landing areas, I believe it is correct to say that unfaired wheels set up as much or even more air resistance than well streamlined floats do in spite of the large size of the latter.

Nearly all the pilots selected for the actual flying came from land machines, because the racing types of seaplanes approximate more closely to the single-seater fighters than to any usual type of seaplane. These seaplanes are very much like a normal aircraft to fly and answer their controls beautifully throughout the speed range, but the take off, and, to a certain extent, the landing, are peculiar. When first accelerating the whole machine is enveloped in spray, and the twist of the slip stream makes it swing to the left uncontrollably until there is sufficient way on for the rudder to become effective in holding it straight. It is essential to locate very carefully any obstacles near the take-off line before starting; because, even when the spray clears, the machine while running on the water is very blind straight ahead. The procedure, then, is to set the machine a little to the right of the wind with full right rudder applied and the stick held hard back to help the nose of the floats out of the water. When first opening up it is advisable to keep one's head well down under the windscreen to avoid fouling goggles with spray for the first two or three seconds, after which it all clears behind. The elevators have to be kept hard back until after the

machine is in the air and has accelerated sufficiently for the wings to lift at an angle less than the maximum obtainable. When running at high speed during the later stages of the take off, the floats are subjected to enormous stresses, and one feels the jar of any uneven water right through the machine. There is no shock absorber other than the V-shape of the keels of the floats, so that although one is being bumped about severely one realises the enormous strength of the structure, because everything feels perfectly rigid and comfortable. Rather more than a mile is needed to get off the water, and about another half-mile before the machine is really climbing comfortably. A big distance is also needed to land and pull up. We once had an engine cut out almost immediately after leaving the water, and the machine pulled up just over three miles from the starting point.

The approach, rather than the actual landing, is out of the ordinary compared with normal machines. The small wing area makes it necessary to glide fairly fast—at about 180 m.p.h.—in order to avoid sinking so rapidly that it becomes difficult to judge the moment for flattening out to the right angle for touching. Even with this wide margin over the touching speed of 110 m.p.h., the nose of the machine seems very high and, as for taking off, one has to choose a clear line to land on before actually turning into it, owing to the bad view ahead. When flattened out the machine floats a long way before actually sinking on to the water, since the speed drops off quite slowly owing to the good streamlines and lack of head resistance. It touches very softly and pulls up quite quickly. The deceleration is particularly rapid at the first touch, and one has to have one's shoulders firmly wedged to avoid being jerked forward and cracking the goggles on the windscreen.

Now as to the water conditions; it will be obvious that besides a big area, a reasonably smooth surface is essential, and then the landing, even at what now seems very high speed, is really quite simple. This applies of course to the take-off as well, and the only state which makes landing awkward when the take-off is possible is a glassy surface when it is difficult to judge the height off the water. The take-off is, at present, the only real difficulty of high speed flying, and before the wings will lift, the floats have to travel on the water at a speed only exceeded by the motor boat, which holds the world's record. The floats will not stand more than a reasonably small chop on the water; in any swell or in wash from a big ship they cannot change direction quickly enough on reaching the top, and sometimes jump off to a considerable height. Fairly violent deceleration, if nothing worse, is bound to result when they hit the water again, and if one persisted, something would eventually give long before flying speed could be attained. The same thing applies

in really choppy water, when the waves are too big and solid for the floats to cut through them and maintain a smooth course, but even in less impossible conditions solid water thrown up at low speed from the nose of the floats may bend the tips of the propeller. The same effect of solid water disturbing the run of the floats applies in landing, but with more dangerous results, since the greater the speed below the stall at which the machine is thrown off naturally the higher it will jump.

We found at Calshot that the water was too rough as soon as white horses appeared on the crest of the waves. This usually happened in a wind of about 15 m.p.h., and we were very lucky indeed, both in 1929 and 1931, that we did not get difficult weather on the dates fixed for the contests. We might well have had weather which would have seemed perfect to those who did not realise how easily the water conditions could put us, and all foreign competitors too, out of action. If that had happened we should have disappointed a lot of people and have incurred a great deal of abuse. Actually, in 1929, the weather was perfect, and in 1931 it was so thoroughly bad on the appointed day that no one expected us to fly. Next day we had quite good conditions again.

These difficulties of the take-off produced many problems for the propeller designer to solve. The drag of the floats is very great at low speed, when they are beginning to hydroplane, and again from skin friction when they are reaching flying speed. The revolutions of the propeller are still low, and the slip of the blade, which is fixed at a very coarse pitch angle to give reasonable efficiency at really high speed, is so pronounced that there is only just enough thrust to accelerate at all. Even so, the top speed efficiency is so far compromised that at a point only just over the maximum revolutions required, the propeller efficiency begins to fall off faster than the engine power can be increased. Even when lifting speed is reached the acceleration is slow, so that the initial climb is flat and the danger period when the wings are only unstalled if held at exactly the right angle, is prolonged. A greater range of efficiency of airscrews is badly needed, a requirement which is shown by such widely different work as high speed flying, and the operation of big flying boats; the latter, indeed, could cruise comfortably with a far greater load than their propeller efficiency on the water will allow them to take off.

So far, this must seem rather a gloomy picture, but in the air things are entirely different. In spite of the stresses which are involved in the very high speed, the machines are thoroughly airworthy. They are, in fact, absolutely straightforward and simple to fly. We only had one case of trouble in the air when some tail flutter arose due to a chance

series of vibrations occurring, and the measures taken to prevent any possible recurrence were entirely effective. The accidents which happened last year were all in the take-off and landing. The speed causes no physical discomfort to the pilot and it is not disconcerting. One gets very little sensation of speed at all unless one is flying low down along the coast line and tries to watch individual objects as one passes them. Normally, however, one is looking well ahead, and so does not try to focus on objects close at hand. It is the complete control of power, rather than any feeling of high speed, which gives this form of flying its stimulating effect, and there is no need for conscious concentration any more than in normal aircraft. In fact, when properly rigged, the "S6" maintained level flight with hands and feet off the controls at about 330 m.p.h.

In turning it is possible, but not necessary, to get uncomfortable effects out of the speed. The centrifugal force acting on the machines in a very tight turn can be quite easily made very considerable—up to about seven times the force of gravity. This force acts horizontally, and so in a vertical turn is acting in relation to the aircraft vertically through it. It tends to make the angle of attack of the wings very coarse in relation to the air flow, and to stall the wings even though the speed is very high. Its effect on the pilot is also down him, and if strong enough, draws the blood out of the artery feeding the nerves of the eyes. There is first a restricted feeling round the neck as from wearing a very tight collar, then difficulty in focussing the vision, and finally complete lack of sight or "blacking out." The process is, of course, rapid if a force well above the minimum necessary for complete "blacking out" is applied, but familiarity with the machine and his own condition will enable a pilot to do a turn just sufficiently sharp to produce only tightness round the neck without complete "blacking." All effects immediately disappear when the controls are moved to reduce the rate of turn, and no after-effects have ever been observed. It all sounds very alarming, and it is quite unpleasant the first time one experiences it, but one very quickly gets used to it and soon does not mind at all. We have worked out the short amount of time it will take a machine from 200 feet to hit the water when travelling at 400 m.p.h., and find that, on the assumption that the descent is made vertically, the time is very small, but it would take a great deal to change the speed from horizontal to vertical. In fact, the attitude really does not have time to alter appreciably at all. The machine is already partially round before the rate of turn is high enough to cause "blacking," and in a racing turn one never wants to do as much as 180° , so that by the time one has "blacked out" and reversed the controls the turn is complete.

The result of exhaustive tests, however, proved that it is quite unnecessary, and in fact inefficient, to force the machines round in a very tight turn. The use of recording instruments showing time, speed, and centrifugal force made it possible to reproduce on paper the shape of the turns actually done, and to record the decelerating effect of the centrifugal force which, of course, is very considerable. The figures proved that it definitely paid to do comparatively gentle turns on any course with legs long enough to regain top speed. We tried various turns which produced maximum forces as low as twice and as high as six times gravity. They showed an increase of average speed when the maximum force was just under 4G, and a progressive decrease when it was 5G or higher. The force of 4G has very little effect at all on a pilot, unless he is unfit or puts it on very quickly, whereas at 5G "blacking out" is normally felt, though some pilots stand more than others, so that we proved that what suits the pilot also suits the machine best. We found that it did not pay to do tighter turns at the higher speeds than at the lower, though of course the radius increases a lot with speed, and presumably a rather tighter turn might be the most efficient for racing purposes if speeds were very much higher. As long as it does not matter how great the radius is, it will never be essential to do uncomfortably tight turns for ordinary purpose, and the pilot will feel no discomfort whatever the speed may be.

Perhaps the results of our vertical turning experiments could be applied usefully to a diving attack by single-seater fighters. Their movements are in the same plane as far as the machine is concerned in the attack on a bomber formation, when they dive under them and come up to fire underneath their tails. If they dive very steeply and pull out sharply they black out at a vital moment and also the deceleration is very great, so that they have less speed in the actual attack or to get away and repeat it. On the other hand, it would seem that by pulling out more gently they would be at greater range in the dive and in a better condition throughout the manoeuvre.

The training of pilots did not involve any great difficulties apart from getting the necessary weather and machines for them to fly. This latter put a very heavy strain on the mechanics, because, though our training machines served us very well, they had originally been designed for racing only and needed constant repair work. The engine installation was naturally very cramped, and it took a long time to change engines, but this constantly had to be done since the running life of each one was very short indeed. The fact that each pilot only got a total of about twelve hours high speed flying done in any one training period shows the difficulties in this respect.

Apart from keeping generally fit we did not find any special preparation was necessary. The stories that the pilot is bandaged up in any way are entirely untrue. We tried an elastic waist belt to prevent the blood being pulled down in a turn, but seemed to get no benefit from it and merely felt cramped by it. The only thing that did help was to wear a loose collar. We took plenty of exercise and did not loiter about the sheds in bad weather. Those who smoked and drank at all kept both tobacco and alcohol down, but it is worth noting that of the twelve pilots chosen for the last two teams it so happened that over fifty per cent. were non-smokers and teetotalers, although these points were not, I believe, specifically considered in their selection. It was a point of honour for any pilot to confess at once if he felt at all unfit, and on this understanding we did not have to undergo constant medical examinations. In a word, we did not fuss, and it was a policy that worked very well.

The flying practice was chiefly devoted to turns and aimed at saving distance as much as possible by keeping the turning point just inside the circumference of the turn. The radius at 350 m.p.h. of the best turn is about eight hundred yards, so that we had to aim off to that distance and start turning about seven hundred yards short. It took a lot of practice to be able to do this accurately. We tried forms of turn which involved changes from level flight but soon decided it was preferable to avoid using any control movements that were not essential, because they are bound to increase the drag.

The points that have been dealt with are only those that most closely affect the pilot. There are many others; but to describe them would necessitate more technical knowledge than I possess.

The ease of collecting all the information discovered by the technical experts is greatly enhanced as compared with ordinary research work, in two ways. Firstly, the object set is not complicated by the need to strive for a lot of desirable but often mutually antagonistic points in performance, such as weight-lifting combined with high rate of climb or high speed and big armament with other essentials for commercial or military purposes thrown in. Generally, such work has to be done, and improvement in one direction may have a bad effect in another; but in this case speed is the one and only object. Secondly, without some incentive, such as the Schneider Trophy contest with its fixed date, it is nearly impossible to obtain absolute co-ordination of effort from all the different technical experts who in normal times are working with widely different objects in view. Only by the absolute and obvious necessity of co-operation on the part of the individual experts on aerodynamics, airscrews, metals, sparking plugs, fuels, etc., just to name a

few, is it possible for each to improve the common knowledge by building up his own with that of all the others.

In the initial trials, constant proof is provided of the exact knowledge required by these technicians. Every part is tested to the utmost, because no margin is available to allow of any component producing anything but its maximum efficiency, and the smallest error makes all the difference between failure and success. The most difficult period, as has been pointed out, is on the water, and therefore almost everything can be discovered before actual flight, and we were far from opening the throttle with merely a blind hope for the best. Once in the air, one can always throttle down and reverse the process that has already been accomplished successfully.

As examples of the fine measurements to which design has to go, we found that a propeller blade three inches too short caused so bad a swing that the take-off was practically impossible, whereas at the right length (four feet six inches), although yawing was slightly apparent, it caused no trouble. Again, the angle of the wings had to be adjusted in minutes, and a change of half a degree was nearly always too big a correction. In 1929, when we first tried to take off with the full load of petrol required for the fifty minutes to do the course, the machine refused to accelerate at all, although it had been all right at lighter loads. The trouble was overcome by raising the engine speed by fifty revolutions, which gave the small amount of extra power on the water necessary to take-off. This was obtained by a minute reduction in the pitch of the airscrew. Finally, by fitting small metal tongues on the elevators one inch wide and bent down one degree, we entirely overcame a nose heaviness so pronounced that it had been impossible to hold the machine steady at full speed for any length of time.

The result of all this work was, of course, a freak aircraft which could do nothing directly useful in itself once its performance had been measured, but the knowledge acquired is very great indeed in its application to useful aircraft. Admittedly the cost is great, particularly if one thinks of the money being spent on the machine itself, but, when it is realised that it has really been spent in learning lessons from which very concrete and useful results can be produced, it can be seen that the knowledge is, probably, really very cheap at the price. Its attainment piecemeal in less spectacular and apparently less expensive ways would probably cost a lot more in reality.

This brings us to the great handicap under which high speed flying labours in winning support and approval from seriously minded people. I mean the glare of publicity which its sensational possibilities attract. It is noisily interesting, is easily watched and looks exciting; above all,

up to last year, it had an obviously popular appeal in that there was a trophy for international competition and the preparations involved secrets as to details and the possibility of all sorts of exciting news. All forms of human progress levy a price in money and nearly always in lives, and the cost is paid gladly and usually with the approval of thinking people in particular. Such work is, however, generally undertaken out of the public eye, either in secret or in distant parts of the world where, at any rate until it is all over, the crowd knows little of what is happening. It is no disparagement to the results obtained in mining, in climbing of mountains, or in Polar exploration to say that the knowledge gained in high speed flying is at least as valuable a return for the money expended and the risks to lives involved. I noticed in the Press that one expedition to the Antarctic, which seemed to a very uninstructed reader to be comparatively short and to have quite a limited objective, was going to cost just two and a half times as much as the estimated expenditure on the British effort for the Schneider Trophy last year. I would emphasize again that no offence is intended in these remarks to the value of such undertakings, and I fully realize that the human effort required in them is considerably greater, but whilst full of admiration for such work I suggest that the results of high speed flying are perhaps as useful, and they are essentially very practical. In support of this I should like to quote the following extract from a Press account¹ of a visit to Messrs. Rolls Royce: "The makers of the engines victorious in the last two Schneider Trophy contests and in the speed record attempt are still applying the lessons of those flights. In fact, they have not yet exhausted the great mass of data derived from the 1929 contest. The Belgian government, in addition to recent orders for about 95 British aeroplanes fitted with the same firm's 'Kestrel' engines, has ordered a number of spare engines." This is good proof of the fact that knowledge has been acquired and that it has been usefully applied in inducing foreigners to buy our goods.

It is suggested, however, that there are less concrete results of the work as well. It is extraordinary how, when people get immersed in high speed flying, their ideas of speed change. It is not a pose but quite natural after being engaged in it for a short time to talk of anything under 300 m.p.h. as slow. Constantly, when in conversation with other people, one is caught out in speaking of a speed that seems to them terrific as something perfectly normal. I mention this only as a proof of the adaptability of human nature and as an indication that it is only necessary for everyone to be familiar with high speed, for it to be accepted as nothing out of the ordinary. After all, one's measure of

¹ *Daily Telegraph*, 3rd March, 1932.

speed, just as of everything else, is in accordance with the standard to which one is normally accustomed. There are few measurements one comprehends in accordance with any absolute standard. However, a more useful aspect of this is that comparatively inexperienced pilots are not perhaps unduly worried when first flying fast machines by small peculiarities of speed, because they know that they have been investigated at much higher speeds.

When we consider how far the maximum speed of over 400 m.p.h. is above the 130 odd miles an hour at present usual for commercial aircraft, we can visualize what great strides may yet be made to promote the true usefulness of air transport. In the early days of motor cars it was said that the human frame could not stand speeds of 60 m.p.h., and now ordinary touring cars beat express trains from Glasgow to London doing the journey in seven hours, and anyone who owns a car that cannot do sixty thinks it is slow. A short time ago I travelled to Scotland by night and returned the same way after a short stay. In my comfortable sleeper, the idea of flying from London to Glasgow and back, instead of doing the journey by train, was not attractive, because I visualized it taking about four hours each way; I was already out of the high speed atmosphere. But if the journey were to be done in just under the hour the picture would be very different.

About eight miles or so from the big houses of some country estates there are still shooting boxes in which, a hundred years ago, parties used to stay to save the journey each day to the coverts; perhaps, in time, a sleeper to Edinburgh will be just as much of an anachronism as such shooting boxes are now.

In the high speed atmosphere the mind might go further afield and imagine the journey from London to New York taking about six hours. This is where the real utility of speed is seen, when it is realised that a 40 m.p.h. head wind all the way would cause a delay of only just over half an hour. With such a margin over even exceptionally adverse winds, commercial aircraft would be able vastly to extend their usefulness. They would also be able to improve their paying load immensely through the big reduction they could make in the amount of reserve fuel they would need for safety. It would, in fact, be no longer necessary to take more than a very small percentage of extra fuel in order to ensure getting there in spite of conditions which often will not be met with.

The one great asset that the air has to give as a medium for transport is speed, whether for commerce or for war. We may have all the knowledge about it that we can absorb for useful employment for the moment,

but eventually we must learn more about even greater speeds, and there seems, at present, to be nothing to stop us going a very great deal further yet.

DISCUSSION.

WING-COMMANDER ORLEBAR, in reply to various questions asked, said the mileage to the gallon would be, at full speed, somewhere about two miles to the gallon—that is, on the assumption that the machine does 400 miles an hour and uses about three and a half gallons a minute. Of course, we have not worked out consumptions exactly, but that would not be very far out. There is a point to make there, though, that running at full throttle one is not running at anywhere near the most economical speed.

As to the composition of fuel, it was not entirely petrol but was a mixture of petrol, benzol, alcohol, etc. The mixture was further modified for the final attempt on the record, and the increase in power was chiefly obtained by this means.

In regard to the question of radius of action, I must have given too optimistic a picture. I do not mean to say for a moment that I think it possible for anybody to-day to produce a machine that will fly itself, let alone a paying load, from here to America in six hours. All I meant to imply was that there is nothing as far as I can see, impracticable in it in the future, when the knowledge which has taken us from 280 miles an hour to over 400 miles an hour in four years is applied. If in such a short time we have been able to increase absolute speed so much, it seems to me possible in the future to look forward to about 400 miles an hour for what one might call useful speed, even though it may not be for some years to come.

there are still shooting boxes in which a hundred years ago they used to stay to save the journey each day to the coast; perhaps in time a steamer to Edinburgh will be just as much of an anachronism as such shooting boxes are now.

In the high speed atmosphere the mind might go farther afield and imagine the journey from London to New York taking about six hours. This is where the real utility of speed is seen, when it is realised that a 40 m.p.h. head wind all the way would cause a delay of only just over half an hour. With such a margin over even exceptionally adverse winds, commercial aircraft would be able to extend their usefulness. They would also be able to improve their paying load immensely through the big reduction they could make in the amount of reserve fuel they would need for safety. It would, in fact, be no longer necessary to take more than a very small percentage of extra fuel in order to ensure getting there in spite of conditions which often will not be met without it. As for certain legends in which it is said

The one great asset that the air has to give us as a medium for transport is speed, whether for commerce or for war. We may have all the knowledge about it that we can absorb for useful employment for the moment,

THE STUDY OF WAR BY JUNIOR OFFICERS SOME FURTHER VIEWS AND EXPERIENCES¹

By A ONE-TIME JUNIOR NAVAL OFFICER.

THE young officer blessed with a proper share of ambition and imagination must surely, even if unconsciously, begin at an early stage of his career to question "what is it all for"; "what is the big picture which all the mass of detail in my own immediate foreground should help to produce?" Vaguely too, he probably feels that he would perfect those personal details which occupy so great a part of his daily life more confidently and more efficiently if he could be given a broader and a longer perspective. Such are the germs of a very wholesome desire to acquire a wider outlook on his profession. But, unless they are cultivated carefully, these germs may be crushed at their very inception, either by the indifference of those in immediate authority or by the oppression of such high-sounding phrases as "the study of war" or "the principles of war," the interpretations of which by academic pundits appear to have little or no relation to the practical side of Service life.

Many a youngster has been fired with the desire to join the Navy by reading Kingston's "Three Midshipmen," Marryat's "Peter Simple" or "Mr. Midshipman Easy," Henty's "Under Drake's Flag," or more modern naval war stories like Jane's "Blake of the Rattlesnake," or Clowes' "Captain of the Mary Rose." In many cases it was the individual adventures of the various heroes which appealed most strongly, but at the same time the young reader was visualising a fine picture of what the Navy means and for what end its men and ships exist. These works of fiction were, in effect, a most attractive—if elementary—introduction to "the study of war." Incidentally, many of them are worth re-reading later in life, when their merits in that and many other respects become more apparent.

¹ See Lecture on this subject by Major J. K. McNair, R.A., and subsequent Discussion in the JOURNAL for May, 1932.

His ambition achieved, the young officer finds himself called upon to concentrate on the minutiae of his general and professional education to the exclusion of much of the romance which coloured his previous conception of the career of his choice. Here, at the very outset, immediate authority can do much to keep alive that sense of "what it is all for," and what is the ultimate object towards which all instruction, training, and drilling are aiming. One old-fashioned recipe for this was periodical history classes—history taught on the principle that, as was impressed upon us by that heavy punster, "Badger Bill," its students were like camels and could go far on a handful of dates. Such dry fare, even when lightened by time-honoured jokes and stories, did much to give many of us a strong distaste for history as such. This aversion was in no way lessened when, at a later stage, we were urged to persevere with the verbosity of Mahan, like the child being encouraged to eat an over-dry rice pudding because it will "make it a big strong man." Between the dull facts of great naval events or long-winded soliloquies on them by some ponderous writer and the daily round of life at sea, there seemed to us to be a vast gulf which such "study" did little or nothing to bridge.

Looking back, one realises that the young officer requires to be introduced gradually to the study of war. Suddenly to inflict on him its profundities, even in small doses, is to give him mental indigestion and leave him bewildered and discouraged in his quest. The realities of his daily life are men and weapons; it is through the study of the character and achievements of leaders of men and of the co-ordinate use of weapons that he will gradually appreciate what war involves in the way of command and in the disposition and use of forces.

The human side is all important, and examples of leadership and command, which were to be seen in the enthralling characters of boyhood's fiction must find their successors in the records of great commanders of true history. In this connexion there is much scope for new and more human biographies to inspire a generation which has neither time nor inclination for reading the weighty tomes devoted in the past to the "lives of great men." Such biographies should bring out weakness of character or errors of judgment no less than success; for every man, however great, has his weaknesses, or he is not human, and no man can obtain the experience which inspires confidence who has not made mistakes, even if at the time he was clever enough to conceal them. The young officer of to-day, despite the effects of discipline, does not differ materially from his contemporary in civil life, in that he distrusts those historians who would have him believe that the "heroes of old" were supermen and that they alone really

understood war. He realises that he is better educated and mentally equipped generally than they were, and while ready to pay tribute to their courage and experience, he sees no reason why, if he applies himself to its study, he and his generation should not have as good, if not better, knowledge and understanding of the subject. He realises, too, that in certain respects the character of leadership and command have necessarily changed; discipline, for instance, is in many ways on a different basis to what it was a hundred years ago, and, again, he may have to decide upon a course of action in a matter of a few minutes where his forefathers could have pondered on it for hours. All of this does not imply that there is little or nothing to be learnt from a study of the lives of the great commanders of the past—far from it, but it does mean that the student of to-day is more impressed by a critical biography and one that shows him the dissimilarity of the conditions which it describes to those of the present day, than by an eulogy that seems unnatural and an undue stressing of "eternal truths," which he suspects will not always bear analysis.

On the operational side, the best introduction to a study of the disposition and movement of forces in the mass, is the study of the disposition and movement of units in small groups. From that familiarity with the use of individual weapons which is being daily instilled into him, the young officer can easily be led to interest himself in the co-ordination of their employment in battle. A clear appreciation of the fact that tactical movement should always be a product of the capabilities of weapons and their users is a fundamental stepping-stone to a higher study of war. It is the omission of this step which is so liable to produce the mere theorist, and it is ignorance of the fact that a knowledge of weapons is indispensable to a knowledge of tactics that has led, on many occasions, to faulty tactics and fatal strategy.¹

Another elementary stage in the student's education is an understanding of the difference between, and yet the interdependence of tactics and minor strategy, minor strategy and major strategy, and major strategy and policy.

It is on these lines that he will be able to trace the connexion between the particular weapon in his charge and the tactics likely to be adopted in action by the ships of the fleet or squadron in which he is serving, the probable disposition and movements of those ships on their

¹ The defective disposition of our forces in South American waters in 1914, which led to the destruction of the "Good Hope" and "Monmouth," was the outcome of ignorance of the fighting capabilities of those two ships and of the "Canopus," which was wrongly regarded as an asset, whereas she was only another liability.

particular Station in the event of war, and the part which the forces on that Station will, perchance, be called upon to play in the whole scheme of hostilities.

When the present writer was a Midshipman, an enterprising senior set us to write an essay describing what we thought ought to be the plan of the Mediterranean Command in the event of war with France, and how the British fleet ought to engage in the event of a main action. The results were, doubtless, somewhat amateurish, but at least they made us get out maps and charts in order to locate French bases and measure their distances from each other and from Gibraltar, Malta and the entrance to the Suez Canal. Books of reference, the mere existence of which we should not otherwise have known, were discovered and consulted for information as to the disposition of enemy forces, while *Jane* and *Brassey* were scanned for particulars of armaments. In order to be able to discuss the pros and cons of single line, quarter line and line abreast, each of which had their advocates in those days, it was necessary to study the arcs of fire of the battleships' guns of both fleets. Other matters which obtruded themselves when we began to tackle this ambitious project were the protection of the battle fleet from torpedo attack, both in a day action and on a night passage; communications; supplies; and the safeguarding of merchant shipping. Doubtless, at this time, we knew nothing of the "principles of war," but it was an admirable exercise in staff work, and in writing an "appreciation of a situation"; perhaps, most important of all, it taught us to order our ideas and set them down on paper.

At a later stage in life the writer was called upon to command (on paper) the Blue forces, while another senior Lieutenant directed the Red fortunes; the scheme being that set for the manœuvres in which our ship was actually engaged at the time. The Midshipmen, with the exception of one or two allocated to the Commander as Chief Umpire, were divided between us and given command of the various squadrons and detached forces or told off to be the principal officers on the staffs of the respective Commanders-in-Chief. In separate offices we worked in deadly secrecy; Blue bent on landing his army on the West coast of Ireland before Red could molest him. Not even the close community of the gunroom produced the slightest clue to the Red command as to where the enemy had got to for nearly forty-eight hours. The faces of the Red Commander-in-Chief and his staff grew longer and longer; those of the Blue command expressed the satisfaction of the raider who has successfully eluded the defence and is nearing his goal; the umpires endeavoured to remain impassive. There was far more real excitement over this miniature "war" than there was about the

actual manœuvres, which were being conducted on very different lines. At the eleventh hour contact was made, and the main fleets fought a thrilling battle to the finish on the Captain's dinner table.

Everyone who took part in or who was watching the working out of this scheme agreed that they had profited more from their experience than from anything they had ever had to do in the ordinary course of life at sea in peace time. On both sides it involved the preparation of a general strategical plan, the writing of proper orders, the maintenance as well as the disposition and handling of forces, and finally a fleet action in which the tactics were far more enterprising than those in the usual "P.Z." exercises.

These two examples may seem far removed from a "study of war" of the kind which that phrase is often taken to mean; but they were certainly inspiring and practical stepping-stones to an interest in those higher studies which must engage the attention of an officer as he mounts the professional ladder.

It is a mistake for a young officer to try and acquire the wisdom of a great commander by reading what he cannot digest, and by trying to jump a gap which only experience can bridge; but, with the assistance of his seniors, he can be constantly studying each successive stage in the order of things, until the doctrines of war and its waging cease to seem abstract and academical and become real and practical.

II.

BY LIEUT.-COLONEL C. O. HEAD, D.S.O., late R.A.

IF it be agreed that young officers should be inculcated with a deep knowledge of military history and taught all the minutiae of their profession, no serious objection could be raised against the opinions put forward in the lecture published in the last JOURNAL. But the junior officers who contributed their views to the discussion that followed evidently thought otherwise, and their remarks seem to be not without some justification. Indeed, one courageous member actually condemned the system of promotion examinations, while another spoke scathingly of the lectures to which duty compelled him to listen.

The Lecturer, in order to illustrate some argument, had recourse to the customary reference to Napoleon. Why is it always Napoleon: why not Wellington? In the latter we have one of the greatest masters of war that ever lived, one whose example is admirably suited to our needs, and whose exploits furnish us with models for almost

every conceivable military enterprise that we are likely to undertake. Yet we constantly neglect him. The Prussians have their Frederick, whose stubborn and artful conduct is carefully preserved in memory for guidance. The French have Napoleon, whose contradictory maxims are their guiding stars. Let us then adhere to Wellington, whose lessons should be the A.B.C. of a young officer's education, but which are too often ignored by teachers in their zest to make their pupils professors of encyclopædic military knowledge.

It is in Wellingtonian virtues and practices that the minds of young officers should be steeped, and by far the best school for the purpose is the regiment. Commanding officers, majors and adjutants should be the best instructors, and the common round of regimental duty the best medium for instruction. Care and knowledge of their men and sympathy with them, the habit of assuming command naturally, the faculty of dealing effectively with men inclined to be insubordinate, of getting the best out of them, of avoiding necessity for recourse to the powers of compulsion that lie in the background, these are the matters that should occupy all the attention of young officers.¹ While acquiring power of command and knowledge of the needs and ways of their men, they will also be learning the routine duties and drills of their units and sufficient technical knowledge to meet the practical requirements of their arms and equipment. In this process they will have laid the foundation of character and outlook on which more scientific military attainments can profitably be based.

The importance of regimental training and personal contact with the men cannot be stressed too heavily. It is too frequently forgotten that officers are in partnership with their men, and cannot get on without them. No doubt most people know the story of the irate trainer who met his beaten jockey at the paddock gate and roared at him "Why didn't you come along from the last fence as I told you?" and the jockey's reply, "I couldn't come without the something or other 'orse." Some of our military training overlooks the fact that we cannot come along without the men. It is on young officers, and on the training imparted to older ones when they were young officers, that we must rely to bring the men along; that maxim of Pope, "The proper study of mankind is man," might be more usefully impressed on them than all the maxims of Napoleon.

Examinations are defended, officially, as being a means of ensuring officers studying the groundwork of their profession and as a test of

¹ As a study of another type of leader, contemporary with Wellington, the article on General Lord Hill (see p. 461 of this JOURNAL) is of interest.—EDITOR.

standard attainment for each rank. But do they discharge these objects satisfactorily? A mass of unimportant knowledge is crammed and soon forgotten. All of it that is of any value can be found in the text books, and turned to account when the occasion for its use arises. Many officers have to interrupt their proper duties and disturb the course of regimental life so as to attend classes to enable them to pass these examinations; they may be put to actual expense in the process. And when they have passed them are they any the more valuable officers? Experience leads me to doubt it. Do these examinations ensure a uniformity of standard? It is certain that no test will do so. In character and ability young officers will differ widely, and those are the things that count; not the capacity for cramming the brain with a quantity of detail.

Of even more doubtful advantage are the multitudinous courses which are considered necessary for a young officer's education. May it not be that there are too many of them and that they are of over-long duration? They disturb the smooth flow of regimental life and bias the perspective of the young officer's view. The young men are not in suitable condition for training as specialists as they are not yet sufficiently saturated with the spirit and traditions of their regiments, nor in a proper state of mind to avoid absorbing the defects of the professorial character. Professors are rarely good leaders of men, and often have to be provided with ushers to keep order for them in their class-rooms. Young officers divorced too early from regimental life are apt to lose their sense of proportion, and to regard their special department as having claims on regimental time and resources greatly in excess of those really due. Or they may be sent to courses for which they are entirely unsuited, because someone must go and nobody else is available. The class must be filled and the regiment is of secondary importance.

A few experts and specialists are necessary in a regiment, but my experience inclines me to believe that these are best furnished by the non-commissioned ranks. The latter I have always found to be most proficient, while possessing the advantage over officers that they are single-minded and not distracted by considerations outside their peculiar subject. Officers never seem to suffer any loss of dignity or respect by utilizing the services of these experts freely when required. A few schools with commissioned officers in charge are wanted to train these men, and a few more officers may be essential as inspectors, but the technical specialization of young officers now in vogue may be a faulty system. Complaints of over-specialization in other branches of our national life can be heard. An Admiral wrote recently to the Press saying that the Navy was suffering in efficiency from it. To descend

to a lower plane, the manager of the South African Football team told us that we lost all our matches because our forwards were taught particular duties instead of scrummaging in the old-fashioned way.

To add to the attractiveness of life in the regiment, liberal allowances of leave should be given freely for all deserving objects, always with the proviso that the interests of the regiment or the Service do not suffer by such granting of leave. That necessarily implies that the young officer takes pains to make himself efficient; until he has done so, he should not expect much leave. A first-class regiment is the best of all schools, with the added advantage that it can be made a very happy home for young officers. Leave helps to open their minds and broaden their outlook on life.

It may be objected that Wellingtons are not manufactured on the barrack-square. That is quite true; they make themselves. We cannot all be Wellingtons, nor would such an extraordinary dispensation be desirable; our concern is to create the material which Wellington found so appropriate for the execution of his great deeds. Besides regimental duty some study of military history can be regimentally provided. It might be taught by making every subaltern write a winter essay on some selected campaign. Such work would teach the young officer to think and express himself in writing, and enable him to acquire some knowledge of military history. Some in the course of reading the campaign specified might become inoculated with the desire to study, and pursue further research voluntarily; others, no doubt, would be quite uninterested, and it would not be of much use driving them beyond their natural inclination.

To sum up, regimental life and duty are recommended as our main instrument for the instruction of young officers. They sufficed in the past with, generally, very happy results; they could still, with the adaptation necessitated by modern conditions, be made to suffice with equally valuable results. If we cast our eyes back through our past history we will find that we never had a more competent military body than Wellington's Peninsular army. The basis of its efficiency was its regimental training and comradeship. The Commanding Officers were powerful personalities, exercising great authority over their commands and directly responsible for the performances of their units. It would be wise to preserve carefully any features of that old system which do not conflict with the exigencies of modern warfare or the altered conditions of our national life.

The education of young officers by means of courses, lectures and examinations, removing them for long periods from their units, and the

supervision of their commanding officers, supplanting the regimental spirit by a predilection for some technical speciality, would all seem to be, not only an unnecessary violation of old traditions, but an injurious trend of policy.

III.

By MAJOR C. W. SANDERS, *p.s.c.*, 2nd Battalion, 1st Punjab Regiment.

OUR present system of education in the Army, as set out by Major McNair in his recent lecture, is no doubt open to criticism, and has often been attacked by all the more obstinately conservative elements in the Service. Nevertheless, after reading this lecture, I must confess to finding myself in agreement with Major McNair as to the necessity for periodical tests of fitness for promotion. Indeed, it is difficult to see how examinations can now be done away with. Further, I would even go so far as to say that modern examinations, written as well as practical, are well conceived, so that any officer who knows his business, has kept himself up to date, and "can express himself in English," should have no difficulty in passing any normal Service examination. Much as most of us dislike examinations, there is a distinct value in being asked to commit oneself to a definite course of action or to some line of argument as is done in an examination. The interest of studying for these tests is emphasized by many serious junior officers.

Still, there are certain matters that are not yet clear. For instance, one of the main points open to discussion seems to be the best moment for a young officer to begin to study. By "study" is apparently meant book reading, and Major McNair, rightly in my opinion, does not wish young officers to start this process necessarily at the beginning of their service. On the other hand, the argument put forward against too much delay appears to be that the brain requires practice in study; otherwise it atrophies. I think, however, that it is easy to reconcile both these apparently conflicting opinions, if the military education of the young officer is properly organized.

May I submit a rough scheme for this organization? Nowadays, when a boy first starts his so-called lessons—hateful words—he undergoes phases which can be divided up into kindergarten, preparatory school and public or secondary school. I think the education of the young officer should be based on somewhat similar lines, although it would perhaps be tactful to alter the nomenclature of the phases.

Thus, when a cadet enters on his military service there is no doubt that, if he is one of the right sort, he is thrilled with all his new experiences. Having undergone a good deal of more or less academic instruction, he is now actually put in charge of men—the greatest of all responsibilities. He finds many interests:—e.g., a boat solely under his command, a section of guns, an aeroplane or horses. For the perfect and efficient maintenance of any one of these he is responsible to his next senior commander. Now, if I may apply the simile, this is the time for phase No. 1 of his military education. As with the small boy, so with the young officer, he will learn quickest if his hands are doing practical things at the bidding of the brain—kindergarten teaching is, or should be, essentially manual—modelling, collecting, etc.; so the first military education of the young officer in the unit should be practical, i.e., learning everything possible about the men, animals and equipment in his charge. It must proceed until he knows every buckle of his harness, every detail of the requirements to be expected of a good recruit, of his drill, of the accountancy of his unit, mess discipline and administration. Until all these elementary but vitally important matters become instinctive, there can be no real sound basis for higher military study. In addition, during all this early training young officers probably have to undergo several courses, and these in themselves keep the brain fully occupied.

I submit, therefore, that the first few years of his service, if properly guided, will teach the officer his business, and keep him mentally alert without turning him into a pedant. During these years the senior officers will best assist him by example, discussion and continual explanation of the object of everything he is learning and doing, instilling into him the fact that no success can be obtained in high command if these basic essentials are not only learnt but applied. This training, together with manœuvres, station lectures, etc., all of which broaden the outlook, should be sufficient for the first three or four years in any officer's career.

I would further submit that too much mental activity of the book variety tends to produce tiredness just at the age when the officer is reaching a more responsible status; I need not quote the numerous examples of the late start made by many of our most brilliant commanders. I do, however, agree with Mr. Winston Churchill that the one thing he learnt at school which was of value to him later was a knowledge of English: that is essential.

Having now trained the young officer to be of real value in his unit and seen him make a practical application of the courses he has undergone, he can then pass to stage No. 2. This is the beginning of the "book" stage. Here he must be guided, and assisted to teach himself

by reading to note the ever recurring principles of war and their application. There is no need for the commanding officer, or equivalent commander, to undertake all this teaching himself; the various subjects set for military promotion—let us say to Captain and to Major—can well be dealt with by officers who have already passed those examinations, while guidance by discussion, supervised by a commanding officer, should be sufficient. Where the senior officer can further assist the junior is by keeping his subordinates interested in all problems of the day and broadening their horizon. It is during this period that the junior officer, now older and more mature, can and should consider making a bid for entrance into the Staff College. But I am very emphatically of opinion that the responsible commander should only recommend those officers to take this examination who have proved themselves not only good, but unselfish officers and keen on their ship or unit. This is necessary since work for a Staff College must in a way be selfish, and it must, to some extent, take an officer away from the activities of his unit. This has to be accepted, if the result is to be of eventual use to the Service as a whole; although the personally ambitious officer can never successfully command men and is not the type we require at the head of an army.

The last phase hardly enters into the scope of the discussion, since it deals with the study that may be necessary for an officer of the equivalent rank of Major and upwards who wishes to fit himself for the highest command.¹

I feel that a system of instruction organized on some such lines will—indeed it has been known to produce reliable and well-qualified officers with a minimum of drudgery and with no cramming, while assuredly leaving the pupil ample time for recreation of all kinds. I further consider that with such a system and the increasing opportunities offered by the United Service Institutions at home and in India, and by suitable classes of instruction at station libraries, there should be no need for any officer to incur expense by taking private courses. It seems ridiculous that such a large percentage of Army officers should still consider it necessary to pay what is possibly a civilian firm, for teaching them their business as soldiers.

¹ A lecture, an article, and correspondence on "The Higher Study of War in the Services" appeared in the May, August and November JOURNALS of 1931.—EDITOR.

GENERAL EDUCATION AT THE ROYAL MILITARY COLLEGE

BY LIEUTENANT-COLONEL F. H. WITTS, D.S.O., M.C., Irish Guards.
(*Chief Instructor, R.M.C.*)

IN his recent lecture before the Royal United Service Institution, "The Study of War by Junior Officers," Major J. K. McNair did not appear to take into account the new syllabus which has been adopted at the Royal Military College; nor did those who took part in the ensuing discussion—with the exception of a single officer—make any reference thereto. These omissions appear somewhat unfortunate, and it would seem desirable, therefore, to make more widely known the real nature of this new course of instruction, since several commanding officers who have had the opportunity of paying more than a flying visit to Sandhurst during the last year or so have been genuinely surprised, and perhaps pleased, with the changes that have quite recently been carried out. For reasons of space it is, of course, not possible to give full details of the curriculum; neither is it needful since it is the system of general education only which concerns the subject matter of Major McNair's lecture.¹ At the same time it should be remembered that the tactical training received by cadets has not been reduced in the new course, and it remains adequate to fit all but the more backward cadets to take command of their platoons after a practical apprenticeship in their units.

Major McNair in his lecture asked and attempted to answer three questions relating to the education of the junior officers, namely:—

- (1) When should study begin?
- (2) How should general study be conducted?
- (3) How should general study be assisted?

¹ Full particulars of the course are to be found in the published Sandhurst Syllabus and in the relevant paragraphs in the Army Training Memorandum No. 6, circulated in May, 1932.

The answers to these questions explain the course of general education at Sandhurst, a course which is designed to bring the system of education in the Army into line with the system now current at the Universities.

The answer to the first question seems to be this:—General study for the young officer begins at Sandhurst; consequently the problem that faces commanding officers to-day is not when should young officers begin their study, but how it should be continued after they leave Sandhurst and first join the Army. In no other walk of life is it suggested that young men having reached the mature age of twenty should suspend all intellectual studies for five years or more. It is the very period during which young men, who are worth anything in civil life, realize the necessity of educating themselves, and make the most strenuous efforts to fill the gaps which they then discover have been left by their school and University training. It is the very period when minds are most receptive, most malleable and most capable of intellectual effort; this is evidenced by the various honours degrees obtained at the Universities and by the stiff examinations that are passed by aspirants for legal, medical and other civil distinctions. This impression, namely, that amongst young officers a complete suspension of all intellectual activity for several years is the general rule, is confirmed by the view which is widely accepted that promotion examinations are necessary as an indispensable incentive to work.

General education is not incompatible with the study of regimental routine, of regimental and social customs, nor of violent exercise on horseback and on foot; it is rather—as in other walks of life—its necessary complement, without which purely vocational training has a narrowing and cramping influence. To suspend the work begun at Sandhurst entails the usual results of interrupted work, namely, forgetfulness and severe disinclination to resume the study of an old subject. To encourage the intellectual development of young officers between the ages of twenty and twenty-five would appear to be the urgent duty of commanding officers, if the course of general education at Sandhurst is to bear its full fruit.

We now come to the second question: How should general study be conducted? The answer surely must be that it should be continued on the lines begun at Sandhurst. At the R.M.C. the subjects which form part of the cadets' general education include:—history—of the Army, of the Empire, and of the modern world; economics; a general outline of the Great War leading to a special study of one of its campaigns; the organization of the Empire leading to a discussion of its political and strategical problems.

The list appears formidable, but the subjects are of less importance than the methods of instruction employed. Lectures are reduced to a

minimum and are used to stir the imagination and interest. The cadet is then set to work out problems of all kinds for himself and to set down the results of his investigations and reading on paper. After reading and writing, there follow discussion and speaking under the guidance of the instructor. The centre of this method is a well equipped library and reading room—an institution probably unfamiliar to most previous generations of Sandhurst cadets—and what is equally important, time in which to use it.

To the library shelves the cadet is taught to turn in order to discover the answers to the problems propounded. He is in fact taught how to teach himself, which is the only successful method of education. He is taught how and what to read; he is taught how to write, though the art of expression on paper is usually the least of his accomplishments when he arrives from school, and consequently there is more leeway to be made up.

The recommendations included in the Haldane Report of 1923 have indeed been followed. That Report stated: "Cadets must be trained not merely to receive information but to read for themselves—to search for information themselves—to weigh opinions and to compare different points of view." This is how general study is being conducted at Sandhurst to-day; the school system is forgotten, the University system has been substituted; but the time, the eighteen months course, is too short, and the tragedy of the new system is that the enthusiasm for general study created in eighteen months may evaporate for five years or more. The difficulties are indeed great; custom and habit are stronger in the Services than elsewhere. Still the opportunity of improving the intellectual outlook of the young officer exists if it can be taken.

That now brings us to the third question: How should the general study of the young officer be assisted? Major McNair answered it by suggesting, in outline, the system recommended by Lord Haldane, already adopted at Sandhurst and outlined in the previous paragraphs. It is only necessary therefore that the system, in a less intensive manner, should be continued in units as soon as the young officer joins. The senior officers of the unit must take the place of the Sandhurst instructors and by their own example and enthusiasm must encourage the young officers to continue the mental activities in which they have been trained.

The five years lapse on joining the Army causes frequent comment by the cadets themselves. It is difficult to encourage some types of cadets to intellectual effort at Sandhurst when they are told by those just senior to them that no intellectual effort is required when they join

their units. Promotion examinations and Staff College entrance examination are still a long way off, and it is true to say that young officers for several years after joining "never open a book." This system can and should be altered so that the examinations, when they come, may lose most of their terrors, and be as often they are not now, a real test of merit.

The system will be altered when officers, and especially commanding officers, realize the importance of general education. The Army Council has realized its importance by adopting in large measure the recommendations of the Haldane Committee and introducing the present syllabus at Sandhurst. This syllabus does not produce book-worms and is compatible with full physical activity, great stress being laid at Sandhurst on the fact that physical development is the complement of mental development. Accuracy, skill and rapidity of bodily movement lead to accuracy, skill and rapidity in the more intricate processes of the mind, provided that the former are not overdone.

Most officers can have little or no idea of the system and methods employed to-day at Sandhurst; if they possessed any idea of what is now being done there, a discussion similar to that initiated by Major McNair could not have been carried on without more reference to the work at Sandhurst. When a knowledge of these methods, obtained if possible by a visit to Sandhurst, reaches commanding officers, the general and continuous education of the young officer will then safely be left in their hands.

To sum up:—The Study of War by Junior Officers begins with their general education at Sandhurst, and it should be continued without any break or lapse. The methods of study are reading, writing, and discussion, all under general supervision, but all the result of individual effort. The best assistance to be rendered to the young officer in pursuing these studies is the example and enthusiasm of his seniors.

THE EMPLOYMENT AND CONTROL OF FLYING BOATS

By "DÆDALUS."

IN the May number of the JOURNAL "Zetes" asserts that if flying boats are to bear their "correct share of the responsibilities of the naval forces of the Empire," the Navy must have their own flying-boat squadrons. He implies that the existing seven flying-boat squadrons should mainly, or even entirely, be so situated and employed that they may be utilised "to their best advantage in the war at sea." He then proceeds to criticise the present distribution of the flying-boat squadrons and the Air Staff policy, as he sees it, of using flying boats, as any other type of multi-engine aeroplane, for improving "the strategic mobility of the Air Force and its corollary the development of air routes." He finally makes the sweeping statement, unsupported by any evidence, that the few exercises that do take place between naval forces and flying boats "are invariably unsatisfactory from the naval point of view."

In effect, "Zetes" makes a number of assertions, some of them only half-truths, which are intended to persuade the reader that flying-boat squadrons can only be trained and operated efficiently if they are controlled by the Navy, while he represents this particular type of aircraft as being as essential to the Navy as are destroyers and cruisers for assisting in the control of sea communications, for which it is claimed that Service is entirely responsible. For this reason, it is implied, flying boats should not only be under naval command, but be manned by personnel of the same Service.

Although he acknowledges that, in the present stage of their development, flying boats are unable to accompany the fleet to sea and must operate from shore bases, "Zetes" has based his argument on the common fallacy that the flying boat is a ship with wings. He therefore draws a distinction between the flying boat and any other type of aeroplane, and suggests that since, in a recent lecture, it was stated that the characteristics of the type render it most suitable to assist in

the maintenance of our sea communications in narrow waters, so it is surprising to find existing flying-boat squadrons stationed, trained, and operated without a major, if not sole, regard to war at sea.

The three Services, however, exist for one purpose only, and that is the defence and security of the Empire and its communications. The question of the control of flying boats must, therefore, be considered from this point of view and that of economy of force.

The flying boat is a multi-engine aeroplane differing in principle from other multi-engined types only in that, instead of using the ground from which to operate, it uses sheltered waters. It is essentially an aeroplane, and the fact that it operates from the water does not alter this, although it confers upon it certain advantages over its counterpart landplane.

The characteristics of the type are :—

- (a) Ability to move and operate without elaborate organization.
- (b) Self-dependence.
- (c) Long endurance and range.
- (d) Heavy load-carrying capacity.
- (e) Self-defence.

It is capable of more varied services than any other class of aeroplane. The decision as to which particular duty is its major role is dependent upon the station at which each squadron is located.

These characteristics make flying boats peculiarly suited to assist in the maintenance of our sea communications in narrow waters, and in the defence of naval and commercial bases ; but they are equally well suited for general employment as long-range, heavy load-carrying, aircraft. They may be employed in war operations hundreds of miles inland, where no aerodromes exist or could be made, but where there are ample areas of water from which they could operate, providing supplies can be got to them. The existence of the flying boat makes it possible to select a base and undertake an operation which may be out of the question for other types. The question of the control of this ubiquitous aircraft may, therefore, be considered under two main headings :—

- (a) What proportion of their work would be carried out in co-operation with naval forces ?
- (b) Are the duties of these aircraft such that they may only be undertaken efficiently by personnel with a naval training ?

As regards the first, no definite figure can be laid down, as the situation prevailing at the time must be the controlling factor. There are, however, two major points to remember. Firstly, as has been

stated, all flying boats can be used in operations over the land; and these operations may have no connection whatever with the campaign at sea. Secondly, even in a war at sea, flying boats would very frequently co-operate with other shore-based aircraft rather than with surface ships. This would be so in all operations where flying boats were co-operating primarily with other air units stationed at a particular port or base as part of the defence against sea-borne attack.

We now come to the second point. What are the duties of those flying boats which co-operate with naval forces, and are they such that they may only be undertaken efficiently by personnel with a naval training?

Briefly the duties of these aircraft may be stated to be :—

- (a) Reconnaissance in connection with the attack and defence of trade.
- (b) Reconnaissance of an area prior to the departure or arrival of a fleet.
- (c) Convoy patrols in local areas.
- (d) Routine anti-submarine patrols.

In reconnaissance, success is dependent upon accurate navigation, good communications, and ability to recognise types of ships sighted. Accurate air navigation and good communications form part of the normal training of R.A.F. squadrons; they require practice in the air, and form no part of the experience of the man with naval training. Ship recognition is a relatively simple matter if the crews are provided with silhouettes.

As regards convoy patrols and anti-submarine patrols, there is ample experience from the last War to show that no special naval training is required for anti-submarine work. The employment of fully-trained naval officers for such work would not only be uneconomical, but it could not be maintained during the inevitable war-time expansion.

"Zetes" pays tribute to any success achieved by aircraft on anti-submarine patrols during the last War, but in arguing that naval training is necessary for success, has he not forgotten that the majority of the pilots and observers were personnel recruited during the War and with no nautical qualifications?

So far, flying boats only have been considered; but is it possible to draw distinctions between them and float-planes, or between seaplanes and landplanes, which may be used for coastal patrols as they were in the last War. In this connection it is interesting to note that, in 1918, out of approximately 47 coastal reconnaissance units, 15 were floatplane stations, 3 flying boats, 9 airships and 19 landplanes. The

flying boat as a class is extremely expensive, so that the number of squadrons will always be limited, and it seems inevitable that land aircraft will again be used to assist in protecting our sea communications in future wars.

If the plea for the control of flying boats by the Navy is based upon their ability to fly over the sea, then control should also extend to float-planes and shore-based torpedo-bomber and general purpose squadrons, which will also be used to attack naval targets. But the basic fact is that the air overlies both the sea and the land. It is impossible to draw a distinction between aircraft which operate over the land and those which operate over the sea. The real case against divided control of air forces is to be found in the reasons which led to the decision by which the R.N.A.S. and R.F.C. were amalgamated during the last War: practical experience proved that the separate existence of those two Services resulted in waste and friction.

Surely the common sense solution is that all aircraft shall be provided by the Royal Air Force according to the requirements of the three Services, and that those which are to work with naval forces shall come under the operational control of the Navy just as those which operate with the Army come under the operational control of the G.O.C. This is the only method which will secure true economy of force in the provision of units, training of personnel, and supply of material. It entails co-operation, but no system can be devised which will not entail co-operation at some stage between units in the air and units on the sea. With so few flying-boat squadrons, perhaps it is natural that fears should exist that either naval, military, or air force commanders will be starved of their services. Owing to their high cost, flying boats will always be limited in numbers, and it will be the duty of the Government, advised by the Chiefs of Staff, to decide how they can best be employed at any particular time or crisis. The available aircraft will then be put at the disposal of the naval, military or air force commanders whose needs appear to be the greatest.

As regards training for duties in co-operation with naval forces, it is well appreciated that the results achieved in the past have not always been as good as they might have been, but they do not justify the accusation that "the few exercises that do take place are invariably unsatisfactory from the naval point of view." "Zetes" will possibly admit that he who appears never to make a mistake is either achieving nothing, making no progress, or, most likely of all, is not being found out. Should we not all profit by mistakes? The sin is not so much in making mistakes but in the failure to profit by them. The flying-boat squadrons have not been guilty of this. All possible precautions

are taken to secure improvement both in equipment and personnel, and it is fair to claim that the operational efficiency in the naval side of their work will make steady progress.

Finally, "Zetes" complains of the location of the flying-boat squadrons, and also that the Air Staff employ some of them in the development of air routes. He may feel less uneasy when he appreciates the characteristics of the flying boat as described earlier in this article. The location of so many squadrons at home may be assumed to be due partly to the fact that more training in co-operation duties is possible with home units, and partly to the financial situation which, at present, prevents the establishment of flying-boat bases all over the Empire. In developing air routes, the Air Staff are merely ensuring the presence of aircraft where most needed, and the full use of their mobility.

COAL PRODUCTS AND NATIONAL DEFENCE

By K. GORDON, Esq., B.A.

On Wednesday, 2nd March, 1932, at 3 p.m.

GENERAL SIR NOEL BIRCH, G.B.E., K.C.B., K.C.M.G., in the Chair.

THE CHAIRMAN introduced the Lecturer.

LECTURE.

EIGHTEEN months ago, Professor Brame read a paper before this Institution in which he dealt with the production of power fuel for the Services.¹ That paper gave a very excellent summary of the oil position in this country, and of the prospects of making home-produced oil, as they appeared at that time. Since then, however, the process known as hydrogenation has been developed to such an extent that, from the technical, although not from the commercial, point of view, we may now regard it as possible to manufacture the major part of our oil requirements in this country from our own coal.

To begin with, it will be of interest to recall the figures which were utilized in the statistics given by Professor Brame. The coal output for the United Kingdom is 250,000,000 tons per annum, which is equivalent in heating value to 170,000,000 tons of oil. Of the oil requirements of this country, approximately 6 per cent. is produced here, 20 per cent. is imported as crude oil, and the remaining 74 per cent. imported as refined products. The total imports of oils, showing the crude oil as the refined products produced therefrom, are as follows:—

	<i>Tons/year</i>
Motor spirit	3,270,000
Fuel, gas, and diesel oil	2,860,000
Burning oil	1,100,000
Lubricating oil	380,000
Other oils	60,000
Total	7,670,000

At present the home production of oils consists of Scottish shale oil, motor benzol, and creosote oil made from tar.

¹ "Power Fuel for the Services," by Professor J. S. S. Brame, C.B.E.—p. 64 of the JOURNAL for February, 1931.—EDITOR.

The Scottish shale oil can be worked up to all the normal products of the oil industry. Benzol is an admirable motor spirit. It is possible to use creosote oil as a fuel oil, although its calorific value is somewhat low and difficulty is experienced on mixing it with some petroleum fuel oils. The output of benzol and creosote oil depends on the activity of the iron and steel trade, since they are by-products from the production of coke. The present output of these oils is roughly as follows:—

	Tons/year			
Scottish shale oil	100,000
Benzol	80,000
Creosote oil	320,000
				<hr/> 500,000

REQUIREMENTS OF OIL IN CASE OF WAR.

In the event of war, oil consumption for civilian purposes would be increased because of general industrial activity to an extent which would more than offset any saving which might be made by the prohibition of pleasure motoring. In addition, the Services would require vastly increased quantities of fuel oil for the Navy, of motor spirit for the Army and Air Force, and of lubricants¹.

Our present home supplies amount to only 6½ per cent. of the total peace-time requirements, and so even if the output from our present sources could be doubled, this would make no appreciable contribution towards the enormous quantities of oils which it would be necessary to import. Professor Brame rightly pointed out that, if the development of further home oil production is left until the emergency arises, then doubtless we should have a repetition of the events of the last War, when even more pressing requirements made impossible a sufficiently rapid development of our own potential oil supplies.

LOW TEMPERATURE CARBONISATION.

The process known as Low Temperature Carbonisation² gives by treatment of coal 70 per cent. by weight of coke suitable for household or industrial use, 10 per cent. of gas, and 10 per cent. of tar.

This tar contains pitch and phenols, or tar acids, amounting to about 50 per cent. by weight, which must be removed to enable the residual oil to be used as a low grade fuel oil. That difficulty can be overcome by hydrogenation of the low temperature tar, though this method of procedure has no particular advantage over the hydrogenation

¹ See also "Oil Supplies in War," by Admiral Sir E. J. W. Slade, K.C.I.E., etc.—p. 119 of the JOURNAL for February, 1926.

² A description of a process of this nature was published in the JOURNAL for February, 1926, p. 141.—EDITOR.

of coal itself, when regarded solely from the point of view of oil production. Such a combination uses more fuel than direct hydrogenation of coal, and has the additional drawback of making necessary the disposal of coke on the scale of 8 to 9 tons per ton of petrol produced.

Development of low temperature carbonisation will follow the demand for smokeless fuel, and the tar thus produced will then become available as a raw material for hydrogenation. Hydrogenation thus provides a more profitable outlet for the low temperature tar than has hitherto been found, but the commercial success of low temperature carbonisation depends upon selling the coke at a price considerably higher than that paid for the coal.

POSSIBILITY OF COMMERCIAL DEVELOPMENT OF OIL FROM COAL.

The average declared value of imported oils during 1931 was £3 6s. od. per ton. This covered all grades of oil, and as it was the average over a time of falling prices, it probably represented a higher figure than that ruling to-day.

The quantity of coal that has the same heating value as one ton of oil is 1.5 tons. A theoretically perfect process might thus make one ton of oil from 1.5 tons of coal. But we find that in practice it is impossible to operate any process with a thermal efficiency of 100 per cent. The raising of steam in boilers is accomplished with a thermal efficiency of 80 per cent., the production of water-gas from coke with a thermal efficiency of 55 per cent., and the thermal efficiency of power production is from 20-25 per cent. We shall see later on that the overall thermal efficiency of the hydrogenation process applied to coal is 43 per cent., which it must be agreed is a very satisfactory figure indeed, considering the complication of the process.

This means that to make one ton of oil we require about $3\frac{1}{2}$ tons of coal, which at to-day's price for industrial coal of about 15/- per ton, will cost £2 6s., leaving only £1 per ton of oil for the cost of the process, for repairs, depreciation and obsolescence, and for profits. Actually, the careful estimates which have been made of the cost of petrol production by this process show a manufacturing cost of 7d. per gallon, or £8 4s. per ton.

It is fairly clear that until there is a substantial increase in oil prices, it will be impossible to produce oil from coal profitably without adequate protection against natural oil, and that the home-produced oil must realise a considerably higher price than the oil companies receive for their imported products. It is, therefore, for the country to say whether the added security in the event of war given by the production of oil from coal, and the increased employment that would follow upon such development, are worth the extra price that must be paid for the oil.

THE HYDROGENATION PROCESS.

The Hydrogenation Process provides a complete answer from the technical point of view to the problem of the production of oil from coal and tars, since these raw materials can be completely converted into oils except for small amounts of gas, and residue which are consumed in the process itself. The process has been developed mainly for the production of motor spirit because this is the most valuable fuel oil, the one consumed in the largest quantity, and the only one that enjoys at the present time the protection of 8d. per gallon customs duty. Heavier oils such as burning oil, gas oil, diesel oil, and fuel oil, can also be produced, and in fact the only petroleum products which cannot be made in satisfactory quality at present by this process are lubricating oils.

Although the attention of the Navy is naturally focussed mainly on fuel oil, the production of one ton of petrol is, in the event of war, of just as much value to them as the production of one ton of fuel oil, or lubricating oils, since one ton of tanker space is thereby set free for the import of these other oils. We shall see later on that a plant designed for the production of petrol could produce a large proportion of fuel oil in addition, with little alteration.

Crude petroleum, as obtained from the ground, consists substantially of mixtures of hydrocarbons, or compounds of carbon and hydrogen, containing about 14 per cent. of hydrogen and 86 per cent. of carbon. The crude oil is separated into various fractions by distillation and refined, the finished products consisting of mixtures of a very large number of compounds, boiling between definite temperature limits.

Petrol boils between 40°C and 200°C , and consists on the average of compounds of carbon and hydrogen containing seven carbon atoms to the molecule.

Gas oil has a boiling range of between 200°C and 350°C , and consists on the average of compounds of carbon and hydrogen with 20 carbon atoms to the molecule.

Fuel oil is the heaviest fraction of petroleum which is left behind after distillation of the lighter oils.

Lubricating oil is a fraction of high molecular weight, obtained by vacuum distillation of the oil to avoid overheating, and carefully purified.

By a process known as cracking, which consists simply of heating the oil to temperatures ranging from 400° – 600°C , the heavier fractions

of oil can be broken up to lighter fractions, and a considerable proportion of the petrol used to-day is made in this way.

When we examine the composition of these materials, and compare it with the composition of hydrocarbon oils, we find that there are three essential differences :—

- (a) The presence of impurities: first ash, and second other elements—oxygen, nitrogen and sulphur, which are chemically combined with the carbon and hydrogen. By treatment with hydrogen, these elements are removed as water, ammonia, and sulphuretted hydrogen.
- (b) A deficiency of hydrogen: coal contains 5-6 per cent. and tars 8-9 per cent., compared with 14 per cent. for petroleum oils. This can only be made up by the addition of hydrogen, as in the hydrogenation process.
- (c) Too great a molecular weight: the molecular weight of hydrocarbon oils can be decreased by "cracking," for at a temperature of 400°-500°C heavy oil molecules decompose into smaller molecules. The complex coal molecule cannot be decomposed in this way unless it is first saturated with hydrogen to make its composition more closely approximate to that of a hydrocarbon oil.

The hydrogenation process, and that process alone, is thus capable of turning coal, tars, and other materials intermediate in composition between coal and oil, into hydrocarbon oils comparable with natural petroleum products. In this process the raw material is treated with hydrogen in the presence of catalysts at about 3,000 lbs. per sq. in. pressure, and at about 450°C. temperature.

Four reactions go on simultaneously :—

- (1) Removal of the oxygen, nitrogen and sulphur by combination with hydrogen.
- (2) Increase of the amount of hydrogen present in the material.
- (3) Cracking of the large molecules to small ones.
- (4) Gas formation, which is cracking which has gone too far, so that the hydrocarbons produced are gaseous and not liquid.

The proper control of the hydrogenation process consists of adjusting conditions so that as large a yield as possible of the desired product is obtained, and so that the formation of gas and coke is avoided. The process is usually divided into two parts, liquid phase and vapour phase.

In the former, the coal is pulverised and mixed with oil, and the liquid "paste" treated by bubbling hydrogen through it. In the latter, the oil is vapourised and mixed with hydrogen, the mixed vapours passing over solid catalyst.

EXPERIMENTAL WORK ON HYDROGENATION.

(a) *Liquid Phase*.—For determining the best conditions small continuous plants are used with an output of about 2 cwts. per day. The yield of various products enumerated below can be varied to some extent by altering the conditions of temperature and time. These products are :—

- (1) Heavy oil, the fraction boiling over 300°C , can be used for making fuel oil, or it can be converted to lighter oils by further hydrogenation.
- (2) Middle oil, the fraction boiling between 200°C and 300°C , can be used as a diesel oil, or hydrogenated in the vapour phase to give a further yield of petrol.
- (3) Petrol, the fraction boiling below 200°C .
- (4) Solid residue, the small proportion of the coal which is not converted into liquid oils. This is removed and burned on the boilers.
- (5) Hydrocarbon gas, a mixture of methane and ethane, which is used for making the necessary hydrogen.
- (6) Liquor, an ammoniacal solution of ammonia, which can be worked up to make ammonium sulphate.

When petrol production is aimed at, the process is worked so as to make no heavy oil, 30 per cent. middle oil, 40 per cent. petrol, 25 per cent. gas, and 3 per cent. solid residue. When heavy oil production is required, we obtain 50 per cent. heavy oil, 10 per cent. middle oil, 15 per cent. petrol, 10 per cent. gas, and 8 per cent. solid residue.

(b) *Vapour Phase*.—This process is devised for the treatment of the middle oil, and consists of passing the vapours of the oil, together with hydrogen, over solid lumps of catalyst.

The process is worked so that some 50 per cent. of the middle oil is converted to petrol in each passage. The products consist of unconverted middle oil, petrol, gas and liquor. The petrol and middle oil are separated by distillation, and the latter returned to the plant. In this way, the final yields obtained range from 75 per cent. to 90 per cent. by weight of petrol.

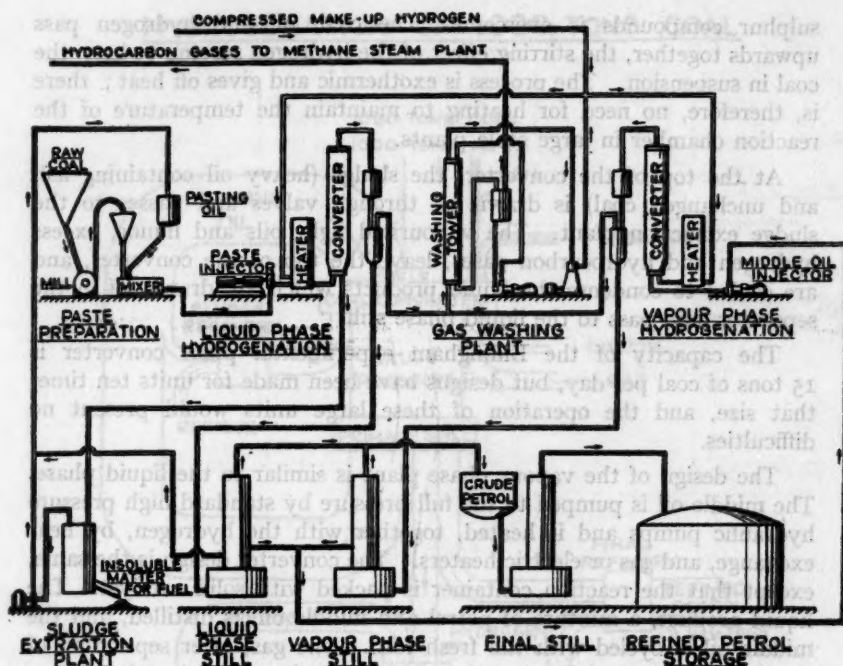


Figure 1

TECHNICAL DEVELOPMENT OF THE PROCESS.

Figure 1 shows diagrammatically a coal hydrogenation plant. The raw coal is pulverised in a mill and mixed to a paste with oil. The paste is kept warm, and is handled just as if it were a liquid. No difficulty is experienced with settling of the coal if the paste composition is kept correct. Catalyst, in very small quantity, is introduced at this point. The paste is then pumped by means of special hydraulically-operated injectors to the full pressure required (200-250 atmospheres, or 3,000-4,000 lbs. per sq. in.). The paste and hydrogen are mixed and heated by heat interchange with outgoing hot products followed by direct gas heating, or by electric heating.

The converter consists of a thick steel forging, some 40 feet high, and 3 feet 4 inches in diameter, which is lined with heat insulating material which keeps the pressure-resisting steel walls at low temperature. The actual reaction takes place in an inner container made of quite thin metal which is not subjected to stress, the internal and external pressure being equal. By this device, weakening of the steel forging by high temperature is avoided, and the corrosive action of hot hydrogen and

sulphur compounds is overcome. The coal, oil and hydrogen pass upwards together, the stirring effect of the hydrogen serving to keep the coal in suspension. The process is exothermic and gives off heat; there is, therefore, no need for heating to maintain the temperature of the reaction chamber in large scale plants.

At the top of the converter, the sludge (heavy oil containing ash and unchanged coal) is drawn off through valves and passes to the sludge extraction plant. The vapourised light oils and liquor, excess hydrogen and hydrocarbon gases, leave the top of the converter, and are cooled to condense the liquid products which are drawn off in the separator, and pass to the liquid phase still.

The capacity of the Billingham experimental plant converter is 15 tons of coal per day, but designs have been made for units ten times that size, and the operation of these large units would present no difficulties.

The design of the vapour phase plant is similar to the liquid phase. The middle oil is pumped to the full pressure by standard high pressure hydraulic pumps and is heated, together with the hydrogen, by heat exchange, and gas or electric heaters. The converter design is the same, except that the reaction container is packed with solid catalyst. The liquid product, a mixture of petrol and middle oil, is distilled, and the middle oil re-cycled with the fresh feed. The gas, after separation of the liquid products, is kept at the necessary hydrogen content (70-80 per cent.) by scrubbing with oil, which dissolves out the hydrocarbon gases. The purified hydrogen is returned to the converters, and the hydrocarbon gases, recovered in releasing the pressure on the oil, are utilized for hydrogen manufacture.

GENERAL FLOWSHEET.

Figure 2 shows the complete flowsheet for the hydrogenation of coal to petrol, and it can be seen that the yield of petrol obtained is rather over 60 per cent. The diagram also shows how, by varying the conditions, it would be possible to make an excess of heavy oil which could be used for the manufacture of fuel oil, and an excess of middle oil which could be used as a diesel oil.

In addition to the coal required for processing, a further quantity is required as fuel. Steam is required for gas production, for distillation, for driving compressors, and for general power purposes. The boilers are fired partly by the solid residue from hydrogenation, but this is not sufficient to provide more than a portion of the steam required. Gaseous fuel is required for providing the heat for the hydrogen production process, for stills, and other heating purposes, and this is provided for

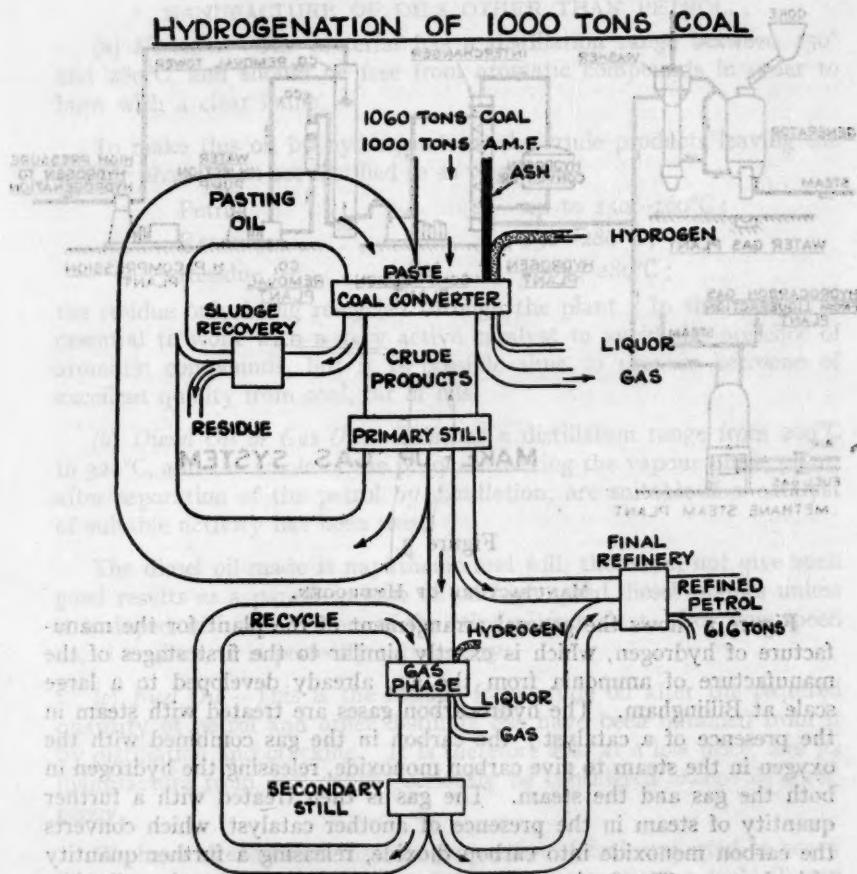
HYDROGENATION OF 1000 TONS COAL

Figure 2.

partly by the surplus hydrocarbon gas, but the major portion must be generated in coal producers.

For one ton of petrol, 1.6 tons of coal (ash-free dry basis) must be hydrogenated, and a further 1.55 tons is required for the boilers and producers, a total of 3.15 tons, or allowing for ash and moisture, 3.65 actual tons. This coal should be cleaned, and the coal for hydrogenation rendered as ash-free as possible, the residual dirty coal being supplied to boilers and producers. The overall thermal efficiency is 43 per cent., taking 8,050 as the calorific value of the coal on ash-free dry basis, and 11,000 as the calorific value of the petrol produced.

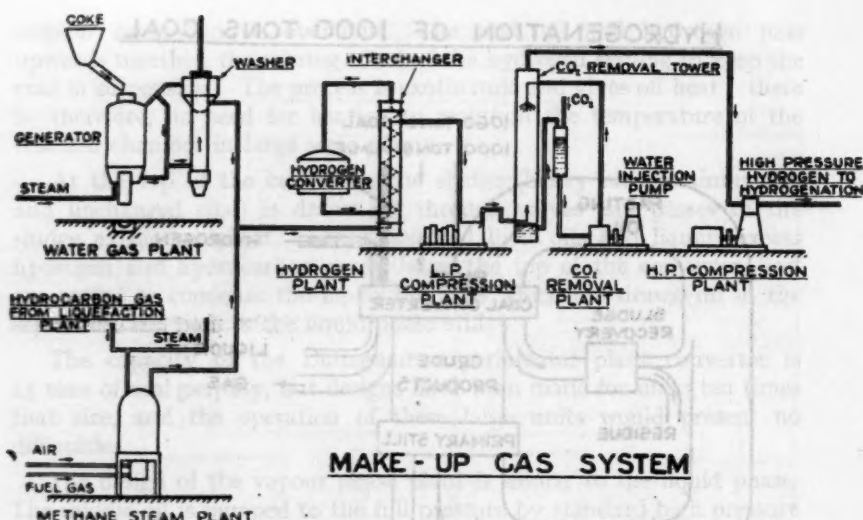


Figure 3.

MANUFACTURE OF HYDROGEN.

Figure 3 shows the general arrangement of the plant for the manufacture of hydrogen, which is exactly similar to the first stages of the manufacture of ammonia from the air, already developed to a large scale at Billingham. The hydrocarbon gases are treated with steam in the presence of a catalyst; the carbon in the gas combined with the oxygen in the steam to give carbon monoxide, releasing the hydrogen in both the gas and the steam. The gas is then treated with a further quantity of steam in the presence of another catalyst, which converts the carbon monoxide into carbon dioxide, releasing a further quantity of hydrogen. The final gas, a mixture of hydrogen and carbon dioxide, is compressed to the pressure required, and at some intermediate pressure the carbon dioxide is removed by scrubbing with water.

COST OF OPERATION.

A coal hydrogenation plant, built on a scale to manufacture 214,000 tons per annum of petrol would cost about £8,000,000 under English conditions. This figure includes land, development charges, interest during construction, hydrogen plant, boilers, power stations, water supply, offices, roads, stores and workshops and provision for working capital. Interest at 10 per cent. on this outlay of £36 per ton-year amounts to £3 6s. per ton of petrol or 3d. per gallon. The operating cost is 7d. per gallon, including provision for obsolescence.

MANUFACTURE OF OILS OTHER THAN PETROL.

(a) *Kerosene*.—The material has a distillation range between 150° and 280°C, and should be free from aromatic compounds in order to burn with a clear flame.

To make this oil by hydrogenation, the crude products leaving the vapour phase plant are distilled so as to give:—

Petrol	up to 150°-160°C;
Kerosene	150°-280°C;
Residue	above 280°C;

the residue only being re-cycled through the plant. In this case, it is essential to work with a very active catalyst to avoid the presence of aromatic compounds, but it is possible thus to prepare kerosene of excellent quality from coal, tar or oils.

(b) *Diesel Oil or Gas Oil*.—This has a distillation range from 200°C to 320°C, and the whole of the products leaving the vapour phase plant, after separation of the petrol by distillation, are suitable if a catalyst of suitable activity has been used.

The diesel oil made is naphthenic and will, therefore, not give such good results as a paraffinic base oil on high speed diesel engines unless it is doped with accelerators of the ethyl nitrate class. For slow speed diesel engines, it is perfectly satisfactory.

(c) *Fuel Oil*.—This is the residue from crude oil after the required quantity of petrol and other distillate oils have been obtained from it by distillation and cracking. It is therefore sold at a low price, and its manufacture from coal cannot seriously be considered except in emergency.

We have already seen that the proportion of coal converted to heavy oil (a product having the same distillation properties as fuel oil) can be increased almost indefinitely. To make it fit for use, this oil must be freed from solid matter, wax and asphalt. But this process is too expensive to consider in normal times, though it is perfectly practicable in emergency.

(d) *Lubricating Oils*.—Hydrogenation is a valuable process for the manufacture of lubricating oil from crude petroleum oils, since a hydrogenated crude oil will give a higher yield of lubricating oil than the original oil, and the lubricating oil will moreover be of superior quality. Although light lubricating oils can be made by the hydrogenation of coals and tars, their properties are inferior and they are only suitable for use in emergency.

DISCUSSION.

LIEUTENANT-COLONEL W. H. JONES: I gather that the great difficulty which prevents the manufacture of petrol from coal is the cost of the erection of the plant—the £8,000,000, to which the Lecturer has referred. This may sound a very big sum, but when we consider the very large sums of money spent annually in purchasing oil in foreign countries, money which is going out of this country, it seems to me that this £8,000,000 capital outlay could be very wisely spent in enabling us to keep some of that money inside the country. With the present rate of tax on petrol, synthetic petrol could be made to compete with the natural product. If so, there would be no handicap on the user in this country; he would pay the same price for synthetic petrol as he is now paying for the natural article. The only difficulty is to find the capital.

THE LECTURER:

THE LECTURER, in reply, said: It is quite true that the 8d. tax on imported petrol is enough to make possible the operation of a coal hydrogenation plant in this country, but £8,000,000 is a lot of money and the profit on that £8,000,000 would depend entirely on this protective tax remaining in force. In addition, if we made a big proportion of the petrol which is now imported into Great Britain, the loss of revenue might tempt the Chancellor of the Exchequer to put an excise duty on petrol produced in this country. Nothing can really be done until the position of the Government is clear. It is not something which a private company can take up in the ordinary way, because it is too great a risk to start an industry which depends for its profits entirely on the imposition of a tax, unless the Government will state in some very definite way that they will ensure the industry enjoying the benefits of the tax more or less indefinitely.

With regard to the question of diesel oil, in the diagram which I showed giving the various fractions of oil, I left out diesel oil, because so many different fractions of oil are sold for use in different diesel engines. The fraction on that diagram corresponding to gas oil would suit most diesel engines, but the heavy marine type runs on something which is nearer a fuel oil and the light high-speed engines which are being used for motor omnibuses use something almost as light as a paraffin oil. A very wide range indeed is used for diesel engines.

THE CHAIRMAN:

I think the question before us really amounts to this: does the country recognise the gravity of our position as regards oil fuel? In the year 1914 a great many ships were coal-burning ships, and some were mixed oil and coal-burning ships. In the Army there was no tank; there were some transport vehicles, and a few armoured cars which, in point of fact, played a negligible part in the opening stages of the War. The Army was not mechanised as it is now, while the Air Force was in its infancy. Now the whole movements and transport of our defence forces depend to a very great extent on an adequate supply of petrol and of oils of all sorts. We are in a totally different position from that which we occupied before the War, and I think the present situation should give every serious-minded man furiously to think.

Research has yet a long way to go, so that, in the meantime, we must be certain that, if we are to undertake the defence of the Empire, an adequate supply of oil will be forthcoming.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

INFANTRY REORGANIZATION

A REPLY

BY A REGIMENTAL OFFICER.

MANY readers of the May number of the JOURNAL will have noticed the article on "Infantry Reorganization" from the pen of Major Ashworth, although it is to be feared that most of those who are infantry officers must have regarded the table of proposed amalgamations with derision rather than with appreciation.

From the internal evidence in that article it is easy to see that the writer can have had but little opportunity for realising the spirit of a good Line regiment, the extent to which that spirit depends on regimental pride and regimental tradition, and the strong individuality (seldom fully realised by officers of other arms) of the different regiments. That individuality is of course most obvious in the case of the Rifles and the Light Infantry, distinguished as they are by many details of dress and drill (as also by their passion for massed bugles). But Fusilier regiments equally consider themselves a class apart¹; and, besides those obvious distinctions, all the good County regiments have a similar jealous pride of their own. Had Major Ashworth realised that spirit he would surely never have suggested the many thoughtless outrages on regimental sentiment and tradition which his proposals, if adopted, would entail; for instance, the combining of such widely different regiments as the Manchester Regiment with the 60th Rifles; the amalgamation of the Oxfordshire and Buckinghamshire Light Infantry (the famous 43rd and 52nd of Craufurd's Light Division in the Peninsular War) with a definitely "heavy" corps, the Bedfordshire and Hertfordshire Regiment, under the latter regiment's old number; and the combination of the Durham Light Infantry with the Northumberland Fusiliers under the number of the "Old and Bold" and with the strange title of "North British Fusiliers"—which, if it means anything, should denote a Scottish regiment, and was actually borne in that sense at one period by the 21st Foot. Such absurdities naturally obscure the real merits of Major Ashworth's article, and make destructive criticism only too easy.

¹ In at least one Fusilier regiment the pamphlet issued to recruits begins with a catechism:—"Q. What is a Fusilier? A. A Fusilier is a superior sort of soldier."

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Nevertheless Major Ashworth has reason when he draws attention to certain definite defects in the existing organization ; his administrative proposals are ingenious, although, as we shall endeavour to show, fallacious ; and the whole article deserves detailed refutation rather than the inconsiderate derision with which, we fear, it will have been received in most regimental messes.

The subject in general is one over which most Line officers have pondered at one time or another. *Tot homines quot sententiae* ; and the present writer has heard every conceivable opinion expressed on the subject, ranging from a desire to revert to the independent single-battalion regiments of 1881 to suggestions (usually by officers of other arms) that the infantry regiments should all be amalgamated into one corps. Space does not permit a full discussion of all the possible alternatives ; so this reply will be restricted to criticising certain definite points in Major Ashworth's article.

The essence of his proposals is his scheme for four-battalion regiments. He would maintain the existing garrisons overseas by organizing these four-battalion regiments into three Groups; as follows:—

" A " GROUP 13 regiments each having	2 battalions in India.
	1 battalion in the Colonies.
" B " GROUP 11 regiments each having	1 battalion at regimental centre on high establishment.
	1 battalion in India.
" C " GROUP 7 regiments each having	2 battalions at home training centres.
	1 battalion at regimental centre on low establishment.
	1 battalion in India.
	1 battalion in the Colonies.
	1 battalion at home training centre.
	1 battalion at regimental centre on medium establishment.

At first glance this scheme appears to meet requirements. But on closer examination it becomes apparent that the suggested organization of regiments would not work in practice ; because, so far as the " A " Group (the key to the whole system) is concerned, one single battalion at home could not maintain three battalions overseas. As Major Ashworth states later (page 365, line 16) each battalion overseas needs drafts of about 200 a year (actually the working figure at the moment is slightly lower). Recruits to supply that need are enlisted at about eighteen years of age. The age limit cannot be raised without diminishing the present inadequate supply of recruits (actually the infantry units at home are about 9,000—i.e., 10 per cent.—short of their establishment). The young soldiers should not be sent abroad to India

till they are about twenty years of age, and so must remain about two years with the home units. Thus in practice, after allowing for wastage, etc., it needs a constant strength of 400 young soldiers at home—at the depot or with the home battalion—to maintain one battalion overseas. To maintain two battalions would require 800, to maintain three would require 1,200¹; and after the necessary cadre of officers, N.C.O's, old soldiers, specialists, etc., had been added the strength of a drafting unit sufficient to maintain three battalions overseas would be at least 1,500—the equivalent of two full battalions instead of one—and such a strength would involve most intricate problems of organization, accommodation and command unless organized into two separate units. Thus, on mathematical grounds alone, at least two battalions are needed at home for each three overseas; even that allows no margin for exceptional contingencies, such as unusually numerous discharges in any one year from a given unit or an exceptional slump in recruiting at home. For such contingencies a working margin is needed. To allow for such a margin of strength in the drafting organization three small battalions are preferable to two larger ones; and so we are back again at the existing Cardwell system by which each strong battalion overseas is fed by a weak battalion at home. This is a practical working organization, and because it is sound administratively the Cardwell system has survived in spite of its defects.

Major Ashworth draws attention to the fact that a battalion coming home after its tour of service overseas seldom brings back more than a small proportion of its personnel, the bulk of the soldiers being of necessity transferred to the outgoing sister battalion. To avoid this, he suggests that soldiers of a battalion coming home within two years time should be "allowed to extend their service so as to permit them to return eventually with the battalion, and thus avoid the necessity of supplying that battalion with drafts during the period before the change over." There are obvious objections to this, both from the point of view of the men, who might not wish to extend their service at that juncture, and also on grounds of general organization. The yearly flow of time-expired soldiers to the Army Reserve is an important factor in our mobilization arrangements—of which more later. Incidentally it may be noted that one minor reform suggested by Major Ashworth has actually been carried out, as officers are now to be transferred home, if they wish, after six or seven years abroad.

Major Ashworth states that his proposed system "gives scope to skill in administrative working" and suggests that "for instance a

¹ A battalion in the Colonies requires in practice much the same drafts as a battalion in India; and at certain stations (e.g., Malaya) the same physical conditions as in India would apply.

battalion leaving home for the Colonies should be composed in part of men having . . . at least seven years to serve." This proposal would indeed require "skill in administrative working"! Since the period of a soldier's service with the Colours is usually seven years, and (as stated above) young soldiers must normally serve some considerable period at home to start with, how could a battalion leaving home be composed, even in part, of soldiers with seven years to serve? Apparently in this case also Major Ashworth contemplates allowing a high proportion of the rank and file to extend their service beyond seven years. Such general extension of service with the Colours is not practicable, in view of the necessity for maintaining an adequate reserve to replace casualties in time of war. The existing peace establishments are very carefully calculated to produce the numbers of reservists estimated as required to keep the ranks of the fighting units up to strength until post-mobilization recruits could become available; and there is very little margin.

In that same paragraph, Major Ashworth suggests that the future programme of movements should be disclosed to all concerned. This is not done actually for good reasons. Not even the most prescient staff officer at the War Office can say with certainty where any given battalion overseas may find itself in two years time; and, so long as our Army remains an effective Imperial Police Force, changes in its distribution must take place to meet changing needs. Besides these strategical uncertainties there are other varying administrative factors to be considered in arranging the moves. If arrangements as to future moves were made more than one year ahead, not only the personnel of the units but also contractors and tradesmen of all sorts would make arrangements which might subsequently be upset, to their serious loss, owing to the exigencies of the Service. In practice it is only just to delay publication until the moves are definite; and no definite arrangements can be made more than one year ahead.

Major Ashworth proposes that the draft-finding units at home should be what he terms "regimental centre battalions" with "establishments varying with the tasks devolving upon them according to their groups." Since he suggests also that his four-battalion regiments should move in succession from group to group of his proposed organization, it becomes apparent that the establishments of his proposed "regimental centre battalions" will not only differ in different cases but will also vary from time to time. These proposed deviations from the existing establishments of units would entail great difficulties, both as regards accommodation (for the present barracks are capable of accommodating only units of certain definite size, and alteration would mean great expense) and also

as regards the personnel. For example the periodical variation in the size of his proposed "regimental centre battalions" would entail a corresponding variation in the establishment of their N.C.O's, with consequent alternate blocks and rushes in their promotion. The adjustments of accommodation and of personnel which would result would certainly make the reorganization proposed by Major Ashworth extremely expensive.

As an offset to the obvious costliness of his "regimental centre battalions" he suggests that regimental depots should be abolished. This question of the value of regimental depots is discussed at length elsewhere in this number, so need not be dealt with here in any detail. But we must emphasize the fact that the abolition of depots would be no real economy. This point has often been discussed; but, after full consideration, the depots have been retained. Apart from their value for the training of recruits, the depots are essential as centres for mobilization. If the existing single depots were shut down, large central mobilization stores with accompanying accommodation and staffs for the reception of reservists would have to be created elsewhere at great expense—expense which would probably counterbalance any economy to be effected by the sale of the present buildings. Apart from this, the depots as they stand are of great value in assisting the local Territorials, and in maintaining touch between the regiment and its County—of which more anon.

Major Ashworth proposes altering the existing age rules for service in India. The point is one for the medical authorities to decide. The existing rules as to age and service for India are the result of much experience, and it is unlikely that they can be altered.

He asks that "particular attention" should be paid to his "suggested restoration of numbering regiments." If his proposal were actually to restore all the old historic numbers of our regiments many officers would sympathize; but actually out of the 109 old numbered Regiments of the Line, of which 99 still exist to-day, only 21 would, under Major Ashworth's suggested reorganization, return to their historic numbers. The remaining 78 old regiments would be ordered to use numbers utterly strange to them, and in several cases regiments would be enraged by seeing their famous old number transferred to units which had never borne it before. As an example, it would be hard to say which of three famous regiments would be the more infuriated at Major Ashworth's proposed "27th Regiment"—the Royal Berkshire (the old 49th and 66th) and the Wiltshire Regiment (the old 62nd and 99th) whose identities would be lost in the proposed new organization, or the real old 27th—The Inniskillings—who would see their historic number thus appropriated. Sir John Fortescue's great History of the Army would become unintelligible

to future soldiers if the old regimental numbers, used throughout its pages, were to be confounded in the way Major Ashworth suggests.

As regards the general question of whether numbers are preferable to names as designations for regiments, Major Ashworth states that numbers are "something that the mentality of a man can grip." It must be observed that the mentality of most soldiers seems to be sufficient to "grip" (in Major Ashworth's phrase) such titles as "Queens," "Bufs" or "Devons," which (in those three cases certainly) are probably regarded by most people as actually more distinctive than "2nd," "3rd" and "11th," respectively. Also in practice the "bold figures" on the shoulders of the Cavalry regiments are not more easily read than the "long titles" of the Line, which Major Ashworth finds so obscure.

Further on, Major Ashworth states that "Titles matter but little. What counts is the organization." Frankly it is impossible to agree with this. The title of a regiment matters tremendously towards the individual's pride in belonging to it. It is no mere accident that regiments with resounding titles such as "Guards," "Fusiliers," "Carabiniers," &c., have always been among the best in the Army. Units of outstanding merit have indeed sometimes been proud of an unpretentious name (one recollects—"Neither King's, nor Queen's, nor Royal Marines, but 28th Old Bragg's!") but there is no denying that one or two fine old regiments have suffered in recent times from the unnecessarily ugly titles thrust upon them fifty years ago. There would be a general loss of spirit in most of the Line regiments if they were to be forced to adopt the new-fangled designations which Major Ashworth suggests.

Major Ashworth claims as one advantage of his proposals that the fact of regiments comprising four battalions instead of two would "equalise promotion amongst officers and would avoid the necessity . . . of transferring them from one regiment to another." Unfortunately examination shows that this would hardly be the case. Merely doubling the size of regiments would do but little to affect the present (and regrettable) inequalities of promotion. Before the war five Line regiments actually had four battalions; and two of those five were among the slowest in the Army.

Major Ashworth's remarks about the transfer of officers call for comment. Most of the transfers which take place are those of officers selected for accelerated promotion; and it is a strong argument for the present system that it allows officers of outstanding merit to be advanced rapidly without causing a grievance to their old friends in their former regiments. Transfer to a higher rank on account of merit

is a definite encouragement to the individual ; and is usually regarded as an eventual benefit by the regiment receiving the promoted officer.

Major Ashworth's attack on the " territorial " system is proof of his lack of experience with a County regiment. Apart from the value of the County title towards obtaining recruits, the system has been of general value to the Army, stimulating local interest in the Service to an extent which, even if not exactly calculable, is easily realized by experience. If proof is needed, ask the good citizens of Canterbury about The Buffs, or ask any schoolboy in Worcester about the action of Gheluvelt.

In considering Major Ashworth's remarks on this point, the actual situation as regards regiments and counties may be of some interest. So far as England is concerned, there are forty-three Counties¹ and forty-six Line regiments. Twenty-one Counties have one regiment each, three big Counties (Kent, Surrey and Staffordshire) are each divided between two regiments. One (the West Riding of Yorkshire) has four and one (Lancashire) has seven regiments to support. Eight Counties (Bucks, Cambridge, Derby, Hereford, Hertford, Rutland and Westmoreland) are each combined with their next door neighbour to form one regimental district. Three of these Counties have their names incorporated in the title of their regiment, and so far as these instances are concerned there is certainly no lack of County spirit in such regiments as the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment). Of the remaining small Counties, two (Cambridge and Hereford) have independent Territorial units bearing their names. Three only (Huntingdon, Rutland and Westmorland) are not represented in the Army List by an independent unit. It will be seen that there is little basis for Major Ashworth's strictures on the general organization. And in this connexion one must emphasize that if our regiments are to have a local association at all, that association must be on a County basis ; for the County is the historic subdivision of England—a subdivision which has lasted virtually unchanged for the last 800 years. County sentiment is strong, and most Counties have highly developed organizations for all purposes. Nor is there any higher subdivision into Provinces (as in old France and elsewhere) on which an alternative organization could be based. Unless the County spirit is enlisted to meet our military needs there is no obvious method of organizing popular support.

During the last fifty years, and especially since the last war, the Counties have become conscious of their association with the Regiments

¹ Reckoning the County boroughs in with the administrative Counties of which they geographically form part, regarding the Isle of Wight as part of Hampshire, but counting the three Ridings of Yorkshire separately.

of the Line, and in many cases there is now a very close bond of sentiment. If Major Ashworth had ever seen the regimental reunion of a good County regiment, staged by the County authorities in their own County hall and crowded with many hundreds of old soldiers of all ranks and ages, equally enthusiastic regardless of age or rank, cheering to the echo any reference to either the County or the Regiment, he would, we are sure, change his views as to the value of the County nomenclature of our Regiments of the Line.

Bound up with the question of the County association of our regiments is that of the Territorial battalions; and this cannot be dismissed in the airy manner Major Ashworth suggests. In many regiments the bond between Regulars and Territorials is close and constantly renewed; the Territorial Colours bear the Regular battalions' battle-honours; and in most cases the Territorial units approximate as closely as possible to the Regulars in details of uniform and customs. This liaison is productive of very good results and is based (be it noted) on the mutual association with the County. No such intimate association could possibly be maintained if the Regular units were de-localised in the manner Major Ashworth proposes. Does he imagine, for instance, that the 4/Royal Berkshire and the 4/Wiltshire would be happy as (presumably) the 5th and 6th Battalions of his "27th Regiment"; or what does he suggest?

Major Ashworth's actual table of proposed "re-grouping" of regiments was probably not meant to be taken very seriously; and destructive comment may well be left to the officers of the individual regiments concerned. But it must be said generally that, without exception, every one of his proposed amalgamations would cause most bitter feeling in at least one, and in several cases in both, of the regiments which he suggests should be combined. We will confine ourselves to one minor example of a point which, small as it may appear to the outsider, illustrates the difficulties of any such unconsidered handling of an intricate question. What does Major Ashworth imagine that his "3rd Queens Own Buffs" would do about their facings? Would they wear the distinctive blue velvet of the Royal West Kent¹ (as would befit a regiment entitled "Queens Own") or the historic buff facings from which the Buffs derive their name?

Evidently the proposals for those regimental amalgamations have not been thought out with any clear knowledge of the details involved, and it is a pity that they were included in what is otherwise a fairly reasoned paper.

¹ The old 50th Foot were given special permission to wear (alone of all the Line regiments) blue velvet facings when their historic black facings were changed to blue a hundred years ago.

To sum up. Major Ashworth's proposals, for an organization in four-battalion regiments, would be unworkable in practice and in any case would do far more harm than good. Nevertheless his destructive criticism of the present system is to some extent sound. The Cardwell system is a sensible and practical administrative organization which has worked all right for the last fifty years in supplying garrisons for India and our possessions overseas ; but it has four definite defects :—

- (i) It is inelastic—its balance of battalions at home and abroad must be maintained or the system breaks down.
- (ii) It does not provide any striking force at home of units instantly ready for despatch overseas, so that no considerable force can be sent abroad in case of sudden need without recourse to the cumbrous machinery of mobilization.
- (iii) On mobilization, all battalions despatched from this Country must contain a large proportion of reservists, in "soft" condition and not up to date in training.
- (iv) The "watertight compartments" of the sixty-three separate regiments result inevitably in unjust inequalities of promotion.

Can these defects be remedied ? We have seen that Major Ashworth's proposal of four-battalion regiments is not a practical solution. On the other hand a bolder application of his reasoning so as to form groups of, say, ten battalions each would avoid the practical difficulties which spoil his scheme. With ten battalions grouped we could have five battalions abroad being fed by three draft-finding battalions at home (the mathematical factors quoted above will show this to be just a practical possibility) while the remaining two at home could be held complete as a striking force. Assuming twelve such "groups" of ten battalions each, we should have a striking force of twenty-four battalions, or two complete divisions always in training and ready to move.

Alternatively, the "groups" might be rather larger. A twelve-battalion "group" would be easier to work administratively—four battalions at home drafting to six battalions overseas with two battalions complete at home as a striking force. When the practical composition of such "groups" is examined it seems probable that, if such a system were adopted, variation in the size of the "groups" would probably be necessary, some "groups" being of ten battalions, others of twelve or possibly fourteen battalions each. This would reduce the numbers of the "striking force" to, say, twenty battalions—one division and two additional brigades¹—but probably that would be sufficient to meet any minor emergency short of a great national War.

¹ Which happens to correspond exactly with the accommodation available at Aldershot.

For the purpose of such grouping there would be no need to destroy the identity of the existing regiments, so long as for drafting purposes they were co-ordinated with the other units of their "groups"; and such a "group" might possibly evolve in time a corporate spirit, if the regiments were wisely associated and a good title chosen. "Group" is a bad title, undistinguished and unlikely to arouse enthusiasm. On the other hand we have the Brigade of Guards as an existing proof that foot regiments can be grouped into a higher administrative formation without losing anything of their own individuality. There is also the (unofficial) "Highland Brigade."¹ On that analogy it is possible to imagine a "Yorkshire Brigade," a "Lancashire Brigade," possibly a "Fusilier Brigade" (with memories of Albuhera) and a "Brigade of Light Infantry" (with headquarters at Shorncliffe in memory of Sir John Moore). But beyond those few obvious combinations the higher grouping of the Line regiments becomes more difficult; and the problem of combining the 126 existing battalions of the Line into really satisfactory "Brigades"² of ten or twelve battalions each may be recommended as a mental exercise rivalling the *Times* cross-word puzzles. But possibly a satisfactory grouping could be evolved; and in that case (if those newly formed "Brigades" could be moved to establish a joint cricket club and to evolve a "Brigade" necktie) the organization might work well.

Such an organization would avoid the three major drawbacks to the Cardwell system which we have enumerated above. It would be elastic, in that the twenty-odd battalions of the "striking force" at home could be sent overseas at very short notice, if required to meet temporary needs, without dislocating the drafting organization. And it would ensure that those units would be in the highest state of training and physical condition.

The obvious drawback to such an organization in "groups" is that the drafting units at home would have to supply drafts to one or more other units besides their present linked battalion of their own regiment. But that is inevitable in any such system; and (if a "Brigade" spirit could indeed be evolved) it might not be felt to be too great a grievance when weighed against the practical advantages. Obviously the home

¹ Which, albeit unofficial, is highly organized as regards cricket, golf and point-to-point racing, tents at Ascot and Lords; and is distinguished by a much-envied "Brigade" necktie.

² The obvious objection to the use of the term "Brigade" in this sense, is that it would then have a two-fold meaning, since it is also used to denote a field formation of definite size and organization—four battalions, so far as the infantry is concerned. The difficulty could be got over by entitling the latter formations "field brigades"—a term which need not necessarily be restricted, as at present, to the Artillery.

battalions of the "group" would take it in turn to act as draft-finding units, and then in succession would become due to be maintained complete at Aldershot as units of the "striking force."

If such a "group" system were established, it might well be possible to equalize to some extent the promotion of officers; for example, it might be made a principle that promotion to field rank and to command should always be within the "Brigade"; and that measure would strengthen in time the "Brigade" spirit.

Apart from such grouping there is no way of avoiding the drawbacks of the present system save by amalgamating the bulk of the infantry units into one Corps, putting all their officers on one list for promotion and supplying battalions overseas with drafts taken impartially from any unit at home. This would necessitate the disappearance of the present individuality of the different regiments; and from this all good Line officers should pray to be delivered.

To begin with, it may be said broadly that there is no existing *esprit de corps* of "Infantry" as such—at any rate not in our Army. Can any Line officer honestly say that he is proud of being an "infantry" man? He is proud of being a Buff, a Fusilier, a Green Howard, but not of being "Infantry." Why? Possibly because the term has acquired a stigma of inferiority as opposed to Cavalry.¹ Possibly because the term is foreign in origin and rather meaningless in itself. Whatever the reason, "Infantry" (unless qualified by the word "Light") is not a popular term; and it would be difficult to arouse any enthusiasm for an Infantry Corps.

Further, if there is one lesson taught by history, it is that the infantry is the most temperamental of arms, entirely dependent for its fighting value on the elusive qualities of morale and *esprit de corps*; and officers who saw much front-line service in the war will testify that trustworthy infantry is not easily made. The technique of weapon-training and of minor tactics can indeed be acquired in a few months; but more than that is required to make deployed foot-soldiers advance when others are hanging back or hold firm when others are giving way. The Gunner has his gun as a rallying point, the Cavalryman has pride of position and status as the Sapper has pride of craft, the Tanker has his tank just as the Sailor has his ship; but the foot-soldier (now that his Colours may no longer be carried into action) has nothing to inspire him in moments of crisis save his pride in his Regiment and his determination not to let it suffer disgrace.

¹ A subaltern of another regiment once said to the writer:—"You know, we Rifles are not really infantry; we're really dismounted Cavalry."

It is true that the natural instinct of the English would build up to some extent an *esprit de corps* in the individual battalions even of an amalgamated Corps of Infantry; but such an *esprit de corps* of a unit without either regimental distinctions or permanent personnel would necessarily be fluctuating and feeble compared with that which at present exists. "*Esprit de corps?*" said an eminent but cynical Sapper the other day, "It's really nothing but *Esprit de Jalousie!*" He was right, of course, but that very jealousy of our old Foot regiments has been the salvation of our armies in battle during the last 250 years—through Fontenoy and Albuhera to Gheluvelt and on down to 1918. That fierce spirit, however, is not quickly made; and regimental pride once broken cannot easily be restored.

Other armies have made the experiment. Revolutionary France swept away the old regimental distinctions of the *ancien régime*, giving the historic infantry regiments plain numbers and dressing them exactly alike on grounds of "republican equality"; and from that time onwards the French infantry were notoriously unsteady until inter-regimental competition was revived again during the last war by their novel system of *citations* and *fourragères*. The Austrian Army did something similar after 1866, with what results we know. But the German Army made no such mistakes; and before the war each German foot regiment had elaborate titles—Royal and "territorial"—as well as its number, with many distinctions of uniform and consequently with a strong regimental spirit which carried the German soldiers through four years of the grimmest warfare and which has left their survivors to-day with so vivid a sentiment for their old units that each Company of the present *Reichswehr* maintains the traditions of one of the former Regiments of the Line.

Those lessons from the French and Austrian Armies must not be wasted. For fighting purposes the infantry of our Army to-day possesses one invaluable asset, as compared with the infantry of all other existing armies, in the strong regimental spirit of our old Line regiments. That spirit has been built up gradually during the last two centuries by the constant devotion of successive generations of officers and men. To destroy that spirit would be a supreme blunder, to injure it would be foolish in the extreme. Major Ashworth's proposals, besides being impracticable, as shown above, would certainly be most injurious to morale; on both counts they must be ruled out. If however the existing organization could be improved by some such grouping of regiments into "Brigades" as we have suggested above, that measure might possibly be worth considering, so long as regimental spirit did not suffer. Otherwise the existing organization cannot well be altered.

REGIMENTAL DEPOTS

By MAJOR R. L. SHERBROOKE, D.S.O., The Sherwood Foresters.

FOR some time past suggestions have been put forward that regimental depots could, with advantage, be abolished. The agitation has been gaining ground, partly on account of the support which the project has received in influential circles, and partly because it appeals to the prevalent search for further military economies. All too little has been heard, however, of the consequences which would follow on such a change, and it has been customary to brush aside any doubts which may have been adduced as to the wisdom of the measure with a broad assertion that all such objections rest on hide-bound conservatism. It would appear desirable, therefore, to consider the situation a little more from the regimental officer's standpoint, so as to arrive at some idea of how far the proposed change would affect that officer and the actual men whom he has to train and lead. Nevertheless, in order to cover the entire scope of the question it is proposed to consider in the first instance the directions in which the abolition of regimental depots might conduce to economy.

All serious suggestions that have been put forward for the abolition of depots seem to have in view their replacement either by recruit companies in the home service battalions or by large centralised depots, i.e., training centres for the recruits of each command. It would thus meet our purpose to examine how far the institution of any such units might achieve the following ends:—

I. Will the new system produce an effective economy or will it involve heavy expenditure for the purchase of land or the construction of new military buildings?

II. If, indeed, it be practicable, what modification would be required in the case of home service battalions on short tour in the Mediterranean, and how will it affect the present mobilization scheme for the Army?

III. Will it affect adversely the training of the regular recruits or the Territorial battalions affiliated to the regimental depots?

IV. What effect will it have on *esprit de corps*, the Territorial spirit, and the management and organization of regimental affairs and Old Comrades' Associations?

Let us take each of these questions in turn.

I. *Will it produce any effective economy?* It is admitted that the abolition of the regimental depot will be followed by the formation of area or command depots, into which all regimental depots within the area or command would be concentrated in one central school or training unit. Alternatively, it would necessitate the creation of a recruits' company in every home service battalion.

The former system would inevitably necessitate costly extensions to existing buildings, if not the construction of completely new barracks of a special type, equipped with numerous gymnasias, schoolrooms, drill sheds, 30-yard and miniature ranges, and very extensive sports grounds. Against this very heavy outlay, which would naturally extend over several years, it is claimed that considerable sums of money could be obtained by the sale of the Government lands and depot buildings now existing in industrial areas. This last belief, however, seems rather to leave out of account the fact that many of the existing buildings are standing on ground which is not so very valuable, while the buildings themselves may not be suitable for conversion to civil purposes without some appreciable outlay. Moreover, purchasers in cases such as this are usually confined to town and city councils, or more important industrial concerns. Unfortunately, very few of these to-day possess sufficient spare capital to indulge in public parks, building schemes or factory extensions that will not show a return for several years to come. Moreover, if it were known that the Government had decided to sell all such War Department property, the few would-be competitors would naturally wait until they could get the land at their own price, whilst the owners of the land adjoining the barracks selected as the new command or area depots might suddenly find that the desired land had suddenly attained unprecedented values. Consequently, until the contrary is proved by actual estimates, it would be rash to count on any real economy being effected by the change.

II. *The practicability of such a fusion.* Advocates of the formation in each command of a single general infantry depot with regimental platoons state that there will be no difficulty in finding existing barracks large enough for the purpose, and that under this scheme the training, administrative and duty personnel of every depot could be very greatly reduced.

Let us first consider the matter of personnel. By concentrating in one place some twelve regimental depots it would undoubtedly be

possible to dispense with about half the total existing sanitary, bathhouse and dining hall orderlies, as well as police and so forth. But while reducing the numbers of these trained duty men by over half, it is necessary to consider the dimensions of the new style dining halls, cook-houses, bath-houses and latrines that would have to be built, and to reckon what the real saving in men would be. Also every squad of recruits at school requires the services of two N.C.O. instructors; and for the first eight weeks of each course, two physical training instructors are necessary, per squad, in the gymnasium.

On the concentrated training personnel of N.C.O's there would not be more than a saving of 25 per cent., because every squad must have three instructors, while one cadre team of N.C.O's cannot put through more than a very limited number of squads at a time.

Now for the buildings. Few commands have less than twelve depots; some have more. Suppose that each of the centralised depots be given a reduced training and duty personnel of 30 other ranks with an average of 90 recruits. The new central depot would thus entail a concentration of 260 N.C.O's and men, mostly married, 1,080 recruits, and not less than 40 officers, of whom at least 20 would be married. For 36 squads not less than 4 gymnasias, 12 schoolrooms, 6 drill sheds, 6 miniature ranges, six 30-yards ranges, and space for 9 football grounds would be required, not to mention such matters as a sergeants' mess to accommodate approximately 100 members, vast dining halls, corridors of baths, and a N.A.A.F.I. of dimensions never so far contemplated. Somewhat similar arguments apply to the formation of a depot company in each home service battalion.

In the writer's opinion, therefore, the disadvantages of either scheme are so numerous as to render them of more than doubtful benefit, whilst failing to attain those financial advantages which are so loudly stressed.

There is, however, another possibility, namely that of concentrating three or four regimental depots in existing areas, which offers a better hope of success. Yet even in this case it is probable that the minimum cost of necessary alterations, and the purchase or rent of additional sports grounds, would far exceed the saving on personnel and upkeep of buildings, even if spread over a period of ten years. In this modified "area scheme" it would be essential for each depot to retain its regimental individuality and customs, although even then, since the difficulties would be many and the unpopularity very great, the results would probably never be as satisfactory as those obtained by the present system.

Now let us consider from an administrative point of view the proposal to form a depot company in each home service battalion. What would

happen to the recruits' company when the home service unit is on a short tour in the Mediterranean, or is stationed in Northern Ireland or the Isle of Wight. How are the newly enlisted recruits to be sent on to join the unit? Where and by whom are they to be concentrated, dressed, fed, despatched; and what about the cost? All these details do not promise to conduce to any economy.

Again, are the mobilization stores and arms to accompany the home service unit wherever it goes? If so what about wastage and cost of carriage? Where would the reservists be sent if, on general mobilization, the home service unit were stationed at Ballykinlar, Parkhurst or Gibraltar?

Another difficulty, which advocates of this proposal have omitted to consider, is the expense and labour of writing to a few thousand reservists every three or four years to inform them of the new address of the home battalion.

Taking all these matters into consideration this mobile recruits' depot company scheme appears to be quite impracticable. The existing and successful mobilization scheme for the whole Army is based, of necessity, on the regimental depots because it is there, and there only, that the arms, ammunition, equipment, clothing, documents and first rations of the reservists can be conveniently housed and kept up to date. Indeed there are many more things that have to be thought out when any modification of the Army mobilization scheme is under consideration: railway services, local food and water supplies; housing and training areas for thousands of men and horses; troop concentrations and the like. Familiarity with the maintenance of mobilization schemes should convince any officer that the concentration in one spot in each command of a large number of infantry depots, with all that they contain and stand for, is verging on folly. It could on mobilization only create a terrible bottle-neck that must become a nightmare for all staffs responsible for their administration.

III. Will it affect the training now carried out at the depot? Provided that ranges and other training facilities are adequate, the actual instruction given during the eighteen weeks recruits' course would remain much the same under the new scheme, because the three N.C.O's per squad and the other special instructors would, presumably, carry on as before. On the other hand, if the ranges, gymnasias and schoolrooms were too few for the number of squads, the instruction would suffer at once.

Again, there exists the very real danger that the specialist physical training and educational instructors, who presumably would be pooled in a command depot, might lose the personal interest that they now

have in the training and the success of recruits in *their* regimental depots. There would in any case arise a tendency for the atmosphere of the depot to become that of a garrison as opposed to that of a regiment.

Next, officers whose duty it is to teach regimental history and *esprit de corps* to their recruits find that their task is aided by frequent visits to, and short lectures in, the regimental museums which are now a feature of so many of our regimental depots. If the depots were scrapped, would not the museums go as well?

Finally, what would be the exact situation as between the officer commanding a command depot, presumably a lieutenant-colonel or colonel, and the officer commanding the home service battalion? Supposing the officer commanding the home battalion had some fault to find with the training of a newly posted squad, whom should he address; the colonel commanding the command depot, the senior officer of the regiment actually serving at the depot or area headquarters, or who? Again, who would administer the regimental squads at the command depot; Area Headquarters as at present, or Command Headquarters?

Now for the Territorial battalions. Would not the removal of the regimental depots exercise a definitely adverse effect on their training? We seem to forget the reason for the existence of the numerous annual courses for young Territorial officers, for Territorial permanent staffs and N.C.O's, section leaders and specialists? Many of these courses can only be conducted because they are decentralized. Would they not tend to disappear if the depots were concentrated? Then, also, even if the officer commanding of a large new command depot wished to conduct similar courses for the 30 or 40 Territorial battalions in the command, it is very doubtful if his reduced staff and heavy training requirements would permit him to do so.

In short, the growing movement which now exists for co-operation and liaison between regular depots and Territorial battalions would unquestionably be checked, if our several regimental depots were to be closed. The extent to which the depot can be of use to Territorial battalions is as yet scarcely appreciated. This year, in the absence of the usual annual Territorial training, the writer was approached by the commanding officers of two Territorial battalions with a view to allowing their units to carry out a week's training at his depot. Permission was, therefore, obtained to send on leave the regular recruits and duty personnel for six days round about the August Bank Holiday so as to accommodate at the depot some 300 Territorial officers and other ranks. The commanding officer of a Territorial unit will thus have at his disposal the regular training staff and all training facilities. It is believed that the venture will be both popular and successful.

The administrative objections to the scheme for instituting a recruits company in each home service battalion have already been dealt with; let us now turn to the training point of view. In order to obtain the best results in the sixteen weeks recruits' course there must be absolute continuity of instruction and no change amongst the instructors; the routine must be as exact as that of the barrack clock. The gymnasium and school, the miniature and 30-yard ranges, must be continually available. If the War Office would make the course last four weeks longer, this rigidity could be lessened, but to fit into sixteen weeks the present training syllabus laid down, there must be a twelve hour day with little variation and no interruption. In no home service battalion could these conditions be guaranteed. The school and gymnasium and their respective staffs are almost invariably garrison appurtenances, so that the recruits would have to take their chance with the rest of the troops in the station. Moreover, in view of the requirements of the Territorial battalions, courses at Army schools, and companies struck off duty for training, there must arise the danger of a commanding officer being unable to avoid sudden calls being made on the instructional personnel of the recruits' company at short notice—to the great detriment of the training of the recruits' squads.

IV. *What will be the effect on esprit de corps and regimental life in general?* In the opinion of the writer the scheme of command depots, with its pooling of regular personnel and its garrison atmosphere, would be definitely opposed to the inculcation of *esprit de corps* and all territorial feeling. The regimental depot should be, and in most infantry units actually is, the home of the regiment. First impressions are always the most lasting, and where regiments have tried to make their depots friendly, comfortable or even attractive places, their trouble is well repaid by the effect produced upon recruits on first joining. It is at the depot that the young soldier first meets his regiment, and it is there that he says good-bye to it. It is only at his depot that the soldier can give his family and friends a glimpse of his military life. At many depots it is no uncommon thing on a fine Sunday afternoon to see scores of friends and relatives of the recruits inspecting the regimental museum, barrack rooms, dining halls, institutes, gymnasium and allotment gardens under the guidance of newly enlisted members of the regiment. Everyone will agree that it is an excellent thing for the people to see the many amenities and vastly improved conditions of the post-war soldier's life.

Abolish the regimental depot and all this feeling will be swept away. Even though the establishment of command depots might produce some financial saving, would it not be as well to stay the destroying hand and see if the money saved is worth the spirit lost?

Since the War, the several duties of the depot commander have become increasingly more important, for the depot plays a far greater part than of old in moulding the soldier's whole life in the Army; this now appears to be the opinion of our highest military authorities. If the C.O. does his work well and his training is good, the regiment benefits greatly thereafter. In addition, the influence of the depot and of its commanding officer now spreads far beyond the regiment; he bears a certain responsibility for the training and supervision of the O.T.C. contingents in his area; he conducts courses for young officers, regular N.C.O's and Territorials of all ranks. In addition, at many depots the officer commanding manages numerous regimental institutions, such as the Old Comrades Association, the Employment Committee, the Regimental Cottage Homes, the Regimental Memorial and the Regimental Reunion Week. In other regiments, whose number is yearly increasing, the depot commander acts as an unofficial secretary to the colonel of the regiment under whom he runs the regimental dinner and sometimes the regimental journal. Finally, the officer commanding depot is the regiment's official representative in its territorial area, and as such he performs duties not found in the King's Regulations or the Training Manuals. It is obvious that regimental activities such as these are of the utmost value to the Army, and that they can only be run from the depot of the regiment. It would be of interest to know how the advocates of the abolition of our depots propose to deal with such regimental matters if they have their way.

THE MAKING OF A REGIMENTAL MUSEUM

BY LIEUT.-COLONEL L. I. COWPER, O.B.E.

The Royal United Service Institution offers its services and assistance to all Regimental Museums, and brief notices of their special requirements will be published in the Secretary's Notes on application.

The claims of these Museums are particularly borne in mind when duplicate articles are offered to the Royal United Service Museum, or when consideration of space precludes the acceptance of a proffered gift.—EDITOR.

A REGIMENTAL museum must be housed in a permanent home since exhibits cannot be moved from place to place. In addition, if such a museum is to grow, as it must if it is to be of any value, every individual connected with the regiment concerned must know the place to which additional material can be sent. For these reasons regimental museums, almost without exception, are situated in regimental depots where they are of great assistance in bringing home to the recruit the history and traditions of his regiment. Also, in most depots it is possible to find a room or rooms which can be set aside for the purpose without cost to the regiment. On the other hand, depots are usually situated on the outskirts of towns and are not readily accessible to the general public, so that even if the existence of the museum is known, the number of visitors is not likely to be great.

At Lancaster, however, where the depot of the King's Own Royal Regiment is situated, the regimental museum forms part of the municipal museum. This stands in the centre of the town, and is near enough to the depot to be available for the instruction of recruits whilst it is most convenient for the general public. The result is that the regimental museum is visited by thousands who would otherwise never see it, while it forms a valuable link between the regiment and the town and neighbourhood. In the first two and a half years of its existence it was visited by nearly a hundred thousand persons.

An arrangement of this kind depends of course on the goodwill and generosity of the town, but in these days regimental depots are usually in such close and friendly relationship with the municipal authorities that co-operation of this kind should present little difficulty.

When it came to the knowledge of the Corporation of Lancaster that the King's Own was considering the formation of a museum, they very generously offered the regiment the use of two rooms, adjoining the municipal museum, which had been previously let as offices. The Corporation spent £125 on the necessary decoration and repairs of these rooms, while in addition they undertook to bear the permanent charges of heating, lighting, cleaning and supervision; the latter includes the services of the curator and his staff. The importance of these services cannot be overestimated, since, in addition to conducting a correspondence which has run to some two thousand letters in two and a half years, the expert technical knowledge thus placed at the disposal of the regiment has proved most valuable. All that was left for the regiment to do was to collect material and provide the necessary showcases for its display.

THE SCHEME.

The constitution of a regimental museum of this nature needs to be carefully elaborated, because a corporation, or similar body, can exercise no control over regimental money, nor can the regiment manage any corporation funds. Indeed, all expenditure incurred by a committee of a corporation must be sanctioned by that corporation as a whole, and becomes subject to Government audit. The committee of management at Lancaster is known as the Regimental Museum Sub-Committee, and is a sub-committee of the Municipal Museum Committee, itself a sub-committee of the Corporation. It consists of six members representing the Corporation and six members representing the Regiment—one from each battalion and the O.C. Depot. The chairman of the Municipal Museum Committee is chairman of the Regimental Museum Sub-Committee, while the curator acts as managing secretary.

An article setting forth the constitution and policy of such a museum should be published in the journal or magazine of the regiment concerned. It is impossible to stress too strongly the importance of a definite policy being laid down at the very outset, and of publishing it in this way. Otherwise difficulties will continually arise, and a change in the personnel of the committee might mean a reversal of policy.

The points that require early decision will be:—

- 1.—*Should the museum be kept exclusively for regular units, or should it include the whole regiment—regular, militia and Territorial?*

Whatever views might formerly have been held, the comradeship of the Great War has taught regiments to regard all their battalions as members of the same family, so that a museum which would only include material belonging to the regular battalions could not really claim to

be styled a regimental museum. If, then, the museum is to include the whole regiment, a certain amount of research into the history of the different battalions may be necessary, and a complete schedule of the units from which they are derived, together with the dates of their origin and all their changes of title, must be compiled. In the case of the King's Own Royal Regiment, excluding the periods when it was known by the names of its various colonels, the regular battalions have had no fewer than thirteen changes of title, the militia eight, the Territorial units eight; during the Great War the total number of battalions in existence rose to seventeen.

2.—*What material should be admitted?*

The greatest difficulty in the formation of a regimental museum lies in the refusal of exhibits. It is therefore essential that what is not admitted should be clearly defined; so it appears that such things as the following should not be accepted:—

- (a) Replicas;
- (b) Duplicates (except in the case of books which may be required for lending purposes);
- (c) Articles which are not directly concerned with any unit of the regiment, even when the property, or a relic, of a member of the regiment.

Since a regimental museum not only illustrates the past history and traditions of a regiment, but should also provide contemporary material for the use of future historians, the following classes of exhibits may suitably be included:—

- (a) The dress, equipment and weapons used by the regiment throughout its existence;
- (b) (i) Decorations earned by members of the regiment;
(ii) Medals (in duplicate to show obverse and reverse) earned by men serving with a unit of the regiment;
(iii) Sets of medals of individual members of the regiment;
- (c) War trophies captured by any unit of the regiment;
- (d) Photographs connected with the regiment on active service;
- (e) Diaries, autographs, letters, etc., which directly bear on the history of the regiment;
- (f) Portraits and photographs of members of the regiment. In this connexion an attempt should be made to induce all officers when they are photographed in uniform to send a copy to the museum;

- (g) Paintings, drawings, engravings, photographs, illustrating the regiment's existence ;
- (h) Records in book form—either written by a member of the regiment, or about the regiment.
- (i) Press cuttings dealing with regimental events ;
- (j) Maps, especially trench maps ;
- (k) Posters, concert and sports programmes ;
- (l) Miscellaneous souvenirs or any other material directly connected in any way with the regiment.

Interesting exhibits which can only be obtained on loan should be accepted, especially if the loan is of a more or less permanent nature, since it is always possible that such exhibits may ultimately be presented to the museum. The foreign battalion may also find it convenient to deposit on loan such of their valuables as they do not wish to take abroad.

3.—*What type of furniture and showcases should be used ?*

Most regiments experience considerable difficulty in raising funds ; so there is a great temptation to start a museum with cheap showcases. This should be avoided if possible, firstly, because owners generally will not part with their treasures unless they are satisfied that great care will be taken of them, and, secondly, because cheap cases are not airtight and dust-proof. Moth may get into uniforms, and dust and damp penetrate such cases, entailing additional cleaning and handling which eventually damages the exhibits, besides being expensive.

If the best museum showcases are used the cost will probably work out at about £200 for every thousand exhibits, although this will vary in accordance with the class of article to be shown. Uniform cases cost £50 each and do not hold a great many articles, whereas a very large number of badges and medals can be exhibited in a case costing only about £15.

4.—*Formation of a purchase fund.*

From time to time articles of regimental interest come on the market, and it is desirable that a fund should be raised for the purpose of acquiring them. Otherwise many opportunities will be lost of adding exhibits of great interest to the museum.

COLLECTION OF MATERIAL.

The first step towards collecting material will probably take the form of an appeal put forward in the regimental magazine ; but in practice it will be found that personal canvassing is the only really effectual way

of obtaining exhibits—at any rate to begin with. Owners do not know what sort of articles are wanted; they may be reluctant to go to the trouble of making the necessary search and carrying out the subsequent packing. But a personal visit and an offer to remove the goods should never fail to elicit a generous response.

Naturally, at first, it will be easier to obtain militia and volunteer exhibits, especially in the matter of uniform, arms and equipment. The regular soldier moves about so much that he does not hoard his old and obsolete uniform, whereas the militiaman usually lives in the same place and keeps his lumber in the attic. This, indeed, should be an additional reason for including the militia and volunteers in the scheme of a museum. The use of some things in the way of uniform and equipment was common to all battalions and certain articles may well be acquired from the families of former militiamen which it would have been difficult, or impossible, to obtain from the families of regular soldiers.

When sufficient material has been collected to make an effective display—say, from seven hundred to a thousand exhibits—the formal opening of the museum must be arranged. This should be as big and important an affair as possible. At Lancaster the museum was opened by the Lord-Lieutenant of the County, Lord Derby, and the Mayor sent invitations, not only to the town and neighbourhood, but also to past and present officers and their relations all over the country, in addition to all those who had contributed an exhibit. This formal opening resulted in a great many people seeing the museum who would not otherwise have done so, and there is no doubt that the actual sight of articles already presented is an inducement to many people to contribute.

When a regimental museum becomes sufficiently well known it will grow of itself. At Lancaster donations are constantly being received by the curator, who replies with a formal letter of acknowledgment and then publishes a list of accessions to the museum in the regimental magazine every quarter. It has also become a custom, whenever a member of the regiment dies, for his family to offer to the museum any of his possessions which may be of interest, and officers now add codicils to their wills leaving to the museum things of intrinsic or sentimental value which they were not disposed to part with during their lifetime. With regard to this practice it is advisable to keep a file containing a record of the whereabouts of such things as are wanted for the museum, but which, for one reason or another, the museum has not been able to acquire, in the hope that they may become available at some future date.

The more the museum is kept before the public eye the better. In this connexion the local press can help considerably by publishing occas-

ional notes on recent acquisitions; these should be supplied by the curator. Notice boards should be displayed outside the museum and its existence should be specially noted in any list of local attractions which may be compiled for the use of visitors. Further publicity may be obtained in other military and museum journals. It is a curious fact that the experts on military uniforms and equipment, as a rule, are not soldiers but civilians, and such people are much more likely to be in touch with the museum journal and the curators of municipal museums than with the military magazines, so that a wider field of search is opened up.

RECORDS AND CLASSIFICATION.

For record purposes four things are required:—

(1) An accession book, that is, a book containing a list of material accepted. It is ruled in columns and shows—

- (a) The accession number (a serial number);
- (b) Date received;
- (c) Date acknowledged;
- (d) Description of article;
- (e) Donor's name;
- (f) Donor's address;
- (g) Catalogue number;
- (h) Remarks.

(2) A print register (the word print includes pictures, photographs and all kinds of illustrations). This register is a book with columns giving the accession number, the print number, the subject, the catalogue number, and remarks.

(3) A library register for books, pamphlets, journals, news-cuttings, etc., with similar columns to the print register.

(4) Catalogue: this is supplementary to the accession book and is most conveniently kept in the form of a card index.

The labelling of the exhibits is very important. The information given on the labels should be as full and accurate as possible. It should include:—

- (a) Accession number;
- (b) Description of article;
- (c) Unit or battalion in which it was used;
- (d) Period when it was in use in the regiment;
- (e) By whom it was worn—if this information is available;
- (f) Donor's name and address.

At first, definite information is often difficult to obtain, and it is best to use temporary labels in the form of typewritten cards. Later, when the information has been verified permanent labels can be provided. At Lancaster the permanent labels are hand-printed in white lettering on black cards. These labels are clear and effective both by day and by artificial light; in addition they do not cost much if they can be produced locally. Their size naturally depends on the importance and size of the exhibit.

Obtaining the information required for the labels may, at first sight, appear simple, but it is actually the greatest difficulty that is to be surmounted. To begin with, no man's memory is to be trusted, not even if he actually wore the garment or article in question during the whole period when it may have been authorized. Tailors' labels may show the date when the garment was made, or the date when it was altered. Sad to relate commanding officers did not always obey the regulations, and even junior officers were guilty of wearing uniform long after it had been declared obsolete—making confusion worse for posterity by altering details or badges. Finally, the regulations issued in many cases only gave sanction to a practice which had been in use for a considerable number of years. Where such regulations exist, perhaps the safest plan is to give the article the date when its use was authorized.

The identification of old portraits and photographs is another stumbling block. It is surprising how many names can be given to the same bearded and be-whiskered gentleman by brother officers who have survived him.

There are no books dealing exclusively with military uniform and clothing, probably for the excellent reason that the demand has been too small to give them any hope of being a financial success. Various regimental histories, notably the *Annals of the Royal Scots* and the *History of the Royal Inniskilling Fusiliers*, possess appendices giving much valuable information which is applicable to those corps; these are most useful. Unfortunately such books are expensive to buy and cannot be procured from lending libraries, even from that of the Royal United Service Institution.

At Lancaster, before the opening of the museum, about nine hundred exhibits had to be labelled. A few landmarks were known, such as the dates when units were raised, abolished, or changed; their titles; the Royal Warrant of 1751 when regiments were numbered; the introduction of the red coat for volunteers in 1803; the introduction of trousers in 1811; the first clothing regulation in 1822; the adoption of gold lace for the regular army and silver lace for the militia in 1831; the abolition

of the coatee in 1855; the introduction of the territorial linked battalions in 1881; and the introduction of service dress in 1902. With these facts and a certain amount of guesswork temporary labels were produced for all exhibits. These are gradually being replaced by permanent cards as fast as more accurate information becomes available. Visitors to the museum sometimes point out errors; new exhibits throw fresh light on material already on view; while a visit from an expert, arranged through the courtesy of the Curator of the Royal United Service Museum, confirmed, corrected or added to the information already available. This learned visitor not only gave the museum the benefit of his own knowledge, but he consulted another authority who has since visited Lancaster on two occasions.

The making of a regimental museum undoubtedly costs money, and entails a considerable amount of labour; but nobody who has been concerned in such an enterprise can doubt that the expenditure and work are well repaid; for the museum shows how past and present merge into one continuous story, while it invests the dry bones of a regiment's history with life, and makes it comprehensible in a way that no amount of reading can ever hope to do.

THE TRAINING OF JUNIOR LEADERS IN A COUNTY TERRITORIAL BATTALION

By COLONEL P. A. HALL, D.S.O., M.C., T.D.

Late Commanding The Buckinghamshire Bn. Oxford and Bucks
Light Infantry.

THE perennial difficulty facing those who administer the Territorial Army as well as those who occupy its higher commands, is the fact that what is applicable to one unit is often wholly inapplicable to another. It is, therefore, impossible to apply a method of instruction that is based on the experience of one battalion to another. The present system meets the requirements of a battalion which is spread over six stations, none larger than a company and a half, and none smaller (nominally) than a platoon. Such a distribution, however, is not uncommon in county units; thus the system which is here advocated may perhaps be applicable to a large number of units. In the case of a battalion so distributed it becomes most difficult to attain anything approaching a common standard of efficiency and common tactical doctrine. Company and platoon commanders differ widely in knowledge, experience and enthusiasm, and the same is true in a lesser degree of Permanent Staff instructors. This difficulty is inevitable in the Territorial Army owing to the impracticability of getting either officers or P.S.I.s together sufficiently often to produce a uniform standard. As a result of this it may be found that on those occasions when a battalion actually comes together as a whole the standard of knowledge, the sequence of thought, the appreciation of situations and the action taken thereon varies so widely that it becomes almost impossible to forecast, with any reasonable degree of certainty, what any subordinate commander is likely to do under given circumstances. This leads to a lack of confidence and a degree of anxiety on the part of most senior commanders, which will often result in the failure of the operations in hand.

In order to counteract this tendency, the following system based on the experience acquired in the author's battalion is put forward for

consideration. During the N.C.Os' paid classes in the winter, most units devote some hours to exercises on the sand table. These, if well conducted, are the one form of training at which regular attendance is fairly certain, and give the required opportunity for dealing with the problem under consideration. The following is the procedure recommended.

A sand model is first of all built up at battalion headquarters, the lay-out being planned to suit whatever particular lessons it is proposed to teach; for example, a season may be devoted to problems of the advanced guard and the gaining of contact. This sand model is then reproduced at all stations by the Permanent Staff, this result being achieved by the issue of maps approximately contoured, and by string-gridding the sand tables to conform to the grid on the maps. The models are then checked by the Adjutant. Sufficient copies of the map must then be issued to all stations to enable all those attending the classes to work with the map and sand table conjointly: by this means, moreover, a considerable amount of map reading can be taught.

A series of problems is then drawn up, a separate batch to cover each period of instruction. These are issued to stations each week, accompanied by suggestions for reasoned solutions. The tactics must be limited to platoon or section problems, though when forming part of somewhat larger operations, the orders and action of company and battalion commanders should be given. It must also be made clear that the suggested solutions represent neither the only possible course of action nor necessarily the best. Most of these groups of problems should be preceded by a very short lecture (10 to 15 minutes) on the nature of the operation in view. The whole scheme should be rounded off by two or three exercises in the open without troops to illustrate the same type of problem, these being organized by battalion headquarters and carried out thence.

Such a plan of work gave most satisfactory results in the author's unit. Very great interest was taken in the work, and the method of approaching a problem by those under instruction very quickly improved from a hasty and often rather futile solution to a carefully considered and generally sound appreciation. For the final exercises conducted by battalion headquarters N.C.Os arrived at headquarters on Saturday night, were billeted at the Drill Hall and then worked approximately from 9 a.m. to 3.30 p.m. on Sunday, returning home by rail or bus and drawing one day's pay for the exercise. The popularity of these exercises grew so rapidly that the problem of finding sufficient instructors for the syndicates or parties became acute.

A final polish was given to the training by holding a week's course for N.C.Os during which certain hours were devoted to tactical work. It may be urged that such a course is impracticable owing to employment conditions, an opinion which was held by the writer very strongly until it was actually put to the test. It was first tried in 1930, during the early part of the summer, and found that not only did those who were out of employment attend, but that owing to slack trade, employers were in many cases willing to release men for a week although they were in regular employment. In 1930 with about a dozen men attending, the course was run at battalion headquarters, but it was soon realised that any increase in numbers would complicate the matter of accommodation. In 1931, owing to an attendance of close on twenty N.C.Os, the course, thanks to the help of the O.C. Regimental Depot, was held at the Depot. It was run entirely by the staff of the battalion as far as instruction was concerned, but the Depot took over the administrative arrangements.

The objection may be raised that headquarters are doing work that should properly be done by company and platoon commanders. The latter, however, are often unable to spare the time necessary for the careful preparation of such work, and this is the essence of its success; moreover it is really of immense assistance to them since it teaches them the art of making up schemes.

The system has been found to raise the whole standard of winter training, with the result that, when annual camp comes round, the battalion commander can feel confident that his junior leaders are thinking on right lines and that he can anticipate what they are likely to do under most circumstances which can be foreseen.

ENTERPRISE IN NAVAL TACTICS

By LIEUTENANT-COMMANDER J. D. PRENTICE, R.N.

IT is a very ancient platitude that every advance in the art of war resolves itself into a struggle between offence and defence. Human nature being what it is, the general tendency amongst those who practice the art is to play for safety. Hence defence has the better of the struggle, until some genius is produced with the moral courage to put into effect on the grand scale a new and untried form of attack which comes as a complete surprise to his enemy.

Man always dreams of conquering his fellows by means of some totally new method of destruction. A weapon which is infinitely superior to that of an adversary gives the owner such a wonderful feeling of safety. To use the weapon at your disposal in some infinitely superior and therefore completely new way has very much the reverse effect. The reason for this is, of course, simple. A new weapon can be given a trial in a small way before any great decision is risked by relying completely upon it. A new tactical plan cannot. And it is for this very reason that new weapons have never been the deciding factor in any struggle between races of an equal standard of intelligence, whereas new tactics invariably have.

As soon as a thing has once been tried in war it loses its novelty, its element of surprise, and its chance of creating a panic amongst the enemy. Every thrust in war can be parried if it is known and understood beforehand. Knowledge and understanding drive out fear, and it is only by instilling fear that any phase of war can be won. Hence the new weapon has lost its efficacy before it is given the chance of being really effective, while the new tactical conception is often successful, although theoretically unsound, and is hailed as the work of a genius.

But man learns by experience and has a natural mistrust of the untried. Hence we find that it is only when mechanical invention has remained at a standstill for a considerable period that he is driven in desperation to use old weapons in a new way.

If we admit that human tendencies have been and always will remain the same, it is interesting to compare the development of weapons

and tactics in the steam and sailing eras. The introduction of the broadside gun and the gun port into sailing ships increased the decisive range for naval actions from actual contact between the ships to fifty yards or more. The production of the "Dreadnought" type and the development of the torpedo, in the days of steam, had a precisely similar effect, except that the increase in this case was from some hundred to as many thousand yards.

The result was in the former case to introduce, in the latter to emphasize, the fact that single line ahead was the safest formation in which a fleet could fight an action. The methods of utilizing this formation are also distinctly similar. The line, in the days of sail, was always to be found parallel to that of the enemy. To-day we deploy at right angles to the bearing of the centre of the enemy's line. The object in each case is the same; to bring every ship and every gun into action simultaneously.

During the approach, in the days of sail, the line and the ships in the line were kept as nearly parallel to the enemy as possible in order that all guns in the broadside of each ship might be kept in action. To-day we try to keep our "A" arcs bearing. In the XVIIIth century it was laid down that each ship must engage her opposite number in the line. To-day it is equally clearly established that no ship in the enemy's line is to be left unfired at.

A popular form of concentration in the past was to mass the heaviest ships—the three-deckers—in the van in the hope of breaking up the head of the enemy's line and thereby throwing him into confusion. To-day, if we have a superiority of numbers, we concentrate by pairs or sub-divisions on the van, with exactly the same object.

The interest in all these comparisons lies in the fact that none of our great victories of the sailing era were won by adherence to these popular theories. Hawke, at Quiberon, broke all the rules by embarking on a "general chase" on to a lee shore. Howe, on the Glorious First of June, attacked in line abreast with his ships bows on to the French line during the approach. Jervis, at St. Vincent, concentrated on the rear, thereby running the risk of being doubled by the enemy's van; a manœuvre which was only frustrated by Nelson ignoring the primary rule of the Fighting Instructions and breaking out of the line. Rodney and Affleck, at the battle of the Saints, broke their own line in order to break that of the enemy's. Nelson, at the Nile, did not even "double" on the enemy, but took the greater risk of leading half his fleet inshore of them. At Trafalgar, he effected a concentration on the rear by attacking in two parallel columns at right angles to the line of the enemy.

The result, in each case, was the same: consternation and surprise on the part of the enemy and, for this very reason, victory for the man who had the moral courage to accept the risks of breaking the rules and regulations governing the stereotyped theories of tactics.

To-day, after a considerable period during which the weapons and method of propulsion of the Navy have remained the same in principle if not in efficiency, we appear to have arrived at a very similar set of rules to those which proved to be so ineffective during the sailing era. It would be interesting to know just how some genius of the future will break those rules in order to achieve an annihilating victory.

The risks which will have to be run with regard to the approach would appear to be very much the same as those which had to be taken when ships relied upon the wind for their means of propulsion. It seems probable that concentration on the rear will also figure largely in any such victory, since ships which are damaged and whose speed is reduced at that end of the line so quickly lose the support of the rest of their fleet. For them to regain that support their van ships must alter course sixteen points, a manœuvre which must be nearly as difficult to-day as it was when the French captains considered that De Grasse was mad when he ordered them to carry it out in the heat of an action.¹ Such a concentration will probably involve the added risk of giving away the position of advantage for attack with torpedoes, but that risk will always appear if an enemy chooses to run away.

One thing is certain, no decisive result will ever be obtained unless one side or the other introduces the element of surprise to a marked extent and definitely breaks away from stereotyped ideas. It is unfortunate that under peace conditions, whether at sea or on the tactical table, that element, together with the fog of war which effects it to such a great extent, is almost entirely absent.

¹ The difficulties and dangers of altering course sixteen points (180°) together in a modern fleet are often much exaggerated. This manœuvre, it will be recalled, was performed successfully by the German High Sea Fleet at Jutland. It is mainly a question of "drill."—Editor.

THE BRENNAN TORPEDO

By BRIGADIER-GENERAL W. BAKER BROWN, C.B., late R.E.

THE recent death in his eightieth year of Mr. Louis Brennan revives memories of a wonderful invention which held an important place in the coast defences of the British Empire for over twenty years. The details of the invention were secret; and the secrets were well kept during the whole of that period. Now that the conditions of coast defence warfare have made this invention obsolete, it may be of interest to put on record some details of the Brennan torpedo, and the installations which were designed for its use.

Louis Brennan was the son of Thomas Brennan, a merchant of Castlebar, Ireland, and was born in 1852. In 1861 the family migrated to Melbourne, Australia, where Louis was educated. Developing a taste for engineering and inventions, he was articled to a Scotch engineer of the name of Smith, and it was while in his employ that he conceived the scheme for his dirigible torpedo. Mr. Smith was a member of the Victorian Parliament and it was through him that the invention was brought to the notice of the Home Government.

The principle of the torpedo was based on an observation by Brennan that under certain conditions a reel of cotton placed on the floor can be made to roll away from the operator when the thread is pulled from the underside. From this crude experiment he conceived the idea of placing reels of wire inside a torpedo connected to screws, so that when the wires were pulled out sufficient power was imparted to the screws to drive the torpedo forward. Coupled with this he combined two other inventions, one a depth mechanism which could be set to ensure the torpedo running at a fixed depth below the surface; and the second a device to control the steering mechanism of the torpedo.

The details of these inventions were secret, and remain secret; but it may be stated that they depended on the application of a gyroscope. As the first patent for the torpedo was taken out in Australia in 1877, Brennan was certainly a pioneer in this branch of applied science.

He applied these principles in a very ingenious way. He used two reels of wire placed end to end inside each torpedo, each reel being connected to a hollow shaft carrying a propeller. The shafts revolved one inside the other in opposite directions. The wires from the reels were taken through fairleads and down inside the hollow shafts finally emerging through the centre of the propellers. The fairleads were connected to winding apparatus and to the steering mechanism which actuated the fin and tail rudders. When the two reels were being unwound at the same rate, the steering mechanism held the rudders central and the torpedo moved forward in a straight line. If, however, one wire was wound in faster than the other then the rudders were turned and the torpedo changed direction. The application of the above was most ingeniously carried out, and the packing of the mechanism into the limited space inside the torpedo showed that Brennan was a master of detail. The winding in of the wires was done by an engine on shore, each wire coming to a separate drum. The engine driver in charge could control the rate of each drum in accordance with orders received on a dial from the officer in charge.

The dimensions of the torpedo were limited by practical considerations of handling and expense, but in its final form it was larger and contained a heavier charge than any torpedo carried on board ship.

After the torpedo had been patented a working model was made and shown in Australia where it attracted the attention of the authorities. A small company was formed locally to finance the invention, and the torpedo was offered to the Home authorities through the local government. It came to England at a time when much detailed consideration was being given by both naval and military authorities to the question of coast defence. Many committees of senior naval and military officers, and political officials had been considering the problems involved from every side, and it had been decided that, as the mobility of the Navy would be impaired if they were employed on any part of the fixed defences, the latter should be in charge of the Army—the Royal Artillery being responsible for gun defence, and the Royal Engineers for mines.

On receipt of the details of the invention in England, it was first considered by the Admiralty, who decided it was not suitable for use on board ship. It was then passed to the War Office who sent it to the Royal Engineers Committee in August, 1881, for consideration and trial. A full size model was made, and proved so satisfactory that, after another and very influential committee had reported favourably upon it, an improved pattern of torpedo was constructed at the expense of the Government and an engine room and launching-way were provided at

Sheerness. An agreement retaining the service of Mr. Brennan and his assistant, Mr. Temperley, to conduct the trials was made for a term of years. Further trials were continued till 1887 under the supervision of three officers of Royal Engineers—Major M. Sale, Captain (now Major-General Sir) R. M. Ruck, and Captain A. T. Preston. These officers were shown all the details of the torpedo, and set a very searching series of tests at fixed and moving targets, all of which were satisfactorily met by Mr. Brennan. The last of these took place off Fort Victoria, Isle of Wight, in the presence of the Secretary of State for War, many members of Parliament and most of the senior officers of the Admiralty and War Office. The target was an old wooden ship which was towed past the fort at a range of 1,200 yards, and a speed of 10 to 12 knots. Brennan was himself in charge of the torpedo which, to the astonishment of the spectators, passed astern of the target! Brennan then turned the torpedo nearly at right angles, caught up the target boat and struck it on the side furthest from the operator! The explosion was successful and the target hulk was entirely destroyed.¹

An agreement was then made to purchase the exclusive rights of the torpedo from the Australian company for a sum of £110,000, and to retain Mr. Brennan and Mr. Temperley at fixed salaries for a term of years to supervise its manufacture.

The above short summary of a long series of committees and reports shows the extreme care which was taken by the War Office and the Government before adopting the new weapon. A factory for the manufacture of service torpedoes was at once started at Chatham, and arrangements made to contract for the machinery and plant for the service installations. The latter were finally constructed at six stations at home and two abroad. Each installation included a battery of twelve torpedoes, which with the driving engines were placed in a bomb-proof chamber connected with a launching way. As the torpedo could be steered, the whole of the installation could be concealed from the attack till the torpedo was in the water, when it was safe from any form of gunfire. The only vulnerable point was the observing station for the officer in charge which was made very small and inconspicuous. The control was by electric dials; the switches which controlled the latter were combined with a pair of glasses, so that the officer could operate the switches without lowering the glasses. Several plug points for the electrical connections were provided.

¹ This feat was repeated during the War by a German electric motor boat, driven from a power station on the Belgian coast, and guided by the orders of an observer in a seaplane.

The E.M.B. attacked the monitor "Erebus," turned 180° and hit the ship on the far side. The explosion caused considerable damage to the "bulge," but the "Erebus" was able to proceed to Portsmouth under her own steam.—EDITOR.

In considering the tactical use of the torpedo it must be remembered that the form of attack which coast defences were designed to meet was that known as the "running past" attack. This presupposed that the main objective of the attackers was not the fortifications themselves, but some point of importance inside the defences such as a dockyard or shipping at anchor. The method of using the torpedo was to wait until the enemy committed himself to an attack, and then to launch the torpedo at such a time that it would cut across the path of the attacking vessel just abreast of the installation. This involved the minimum of steering and gave a maximum length of run.

A word or two must be given to the steel wire used in the torpedoes, the production of which was itself an engineering operation of no mean importance. As it was necessary to economize weight in the torpedo in every way, the diameter of the wire had to be kept as low as possible, while it had to carry a high tensile strain, and at the same time to be flexible enough to pass easily round the fairleads. After a good many experiments the ideal combination was arrived at. It was decided that new wire would always be used on service, and that once a new wire was taken into use, it would be used again only for practice. The procedure adopted was to test every new wire through a testing machine at the Brennan factory, and if it passed the test to wind it on drums ready for use; the drums containing the spools of wire being enclosed in sealed airtight canisters which were stored with the torpedoes. Arrangements were made for the turnover of this stock by the use of so many pairs of wires each year for practice, the wires so used being carefully re-wound at stations and used for practice until no longer efficient.

The personnel required for each Brennan installation consisted of one officer; one mechanist; eight N.C.Os. and men trained specially for Brennan work, and two engine drivers trained to work the Brennan engine. All this personnel belonged to the R.E. submarine mining company allotted to the defences; all the Brennan specialists were also trained in ordinary submarine mining duties.

A very careful drill was elaborated so that one relief of half the above figures was sufficient to get the first torpedo into the water, while the full detachment could get a second torpedo on to the launching way before the first had completed its run.

Up to 1901 the training of the personnel was carried out under an Assistant Instructor at the School of Submarine Mining at Chatham, using the Sheerness installation for practice. In 1901 the training was transferred to Sheerness and a separate school for Brennan work was formed at that station.

In order to check the running of the torpedoes and the efficiency of the installations, recorders were fixed inside each torpedo, and two graphs, one for the steering and one for the depth mechanism, were taken at every run. These, together with a full diary giving details of runs were sent to Chatham each year, where the Assistant Instructor made a very careful examination which enabled him to indicate not only defects in the apparatus, but also defective handling.

The secret parts of the torpedoes were enclosed at the factory in sealed boxes; that for the depth mechanism was fixed in each torpedo, but the steering boxes were detached and stored in a special safe at each station. Strict orders were given that these boxes were never to be opened at stations. All movements of these secret boxes to and from stations were made under the personal charge of commissioned officers. These regulations proved effective to preserve secrecy.

In 1896 Mr. Brennan's employment as Superintendent of the Brennan torpedo factory came to an end, but his services were retained as Consulting Engineer. By this time a new factory had been built at Gillingham replacing the old factory which was on part of the site now occupied by the Chatham Naval Barracks.

The progress which had been made in the speed and size of attacking vessels since 1887 had also made it necessary to re-design the torpedo. The 1887 pattern using .04 wire had a range of about 2,700 yards and a speed of 20 knots. It was now decided to increase the size of the wire to .07 inch. The thicker wire took up more room while the size of the outer shell of the torpedo was practically stabilized by the size of launching ways and installations. It was, therefore, necessary to reduce the length of the wire used and, by a very careful remodelling of all parts of the torpedo, Brennan arranged to find room for enough wire for a run of 2,000 yards while all parts of the torpedo and engines were strengthened to carry the increased strain. The speed with the new wire was raised to 27 knots.

With these alterations the torpedo proved a thoroughly efficient weapon, while the ease with which it could be worked by its small detachment made it the most economical item in our coast defence system.

In connection with the experiments with the thicker wire, an old trawler was fitted as a floating installation under the name of the "Sir Howard Elphinstone" and proved very successful. Launching was found to be quite easy by dropping the torpedo from a davit.

An interesting trial took place in 1901 between the "Sir Howard Elphinstone" and a torpedo boat towing a small buoy as a target. The trawler took up position off the Nore and the attack was instructed

to enter either the Thames or Medway. The attack failed completely, the torpedo getting home on the target in every run.

The final withdrawal of the torpedo from our defences followed an important change of policy which took place in 1905. In that year the Admiralty reversed the policy of thirty years before, stating that they would take over the responsibility of all defences in the water, including mines, booms or torpedoes leaving the gun defence and electric lights in the hands of the Army.

This change of policy was due in the first instance to the development of the submarine boat, then in its earliest stage of a small vessel capable of working at only a few miles from a parent ship or shore establishment. The Admiralty proposed to station a small flotilla of submarines at each defended port and suggested that this would necessitate the removal of minefields to give manœuvring space for the submarine boats. The submarine mining establishments would thus be rendered redundant and be handed over to the Admiralty for use by the boats. The War Office did not concur, and a joint Naval and Military Conference failed to reach agreement. But the political authorities supported the naval view and the minefields and Brennan torpedoes were abolished, although as a matter of fact the squadrons of small submarine vessels which were to replace them were never provided.

On the other hand, it must be admitted that new factors were now coming into account, such as the great increase in the accuracy and range of gunfire from ships and the possibility of the submarine as a weapon of attack. Whether the changes introduced in 1905 were justified at the time or not, the reduced coast defences, supplemented by a large development of naval mining and very active flotillas of small craft, sufficed to keep our coasts intact during the strain of the Great War.

THE FIGHTER TACTICAL UNIT FOR HOME DEFENCE

BY SQUADRON LEADER H. V. ROWLEY, R.A.F.

IN any kind of warfare, air, land or sea, there are always two distinct forms of tactical units. First comes the unit used for the approach period before fire is opened; this may be termed the "approach unit;" secondly, there comes the unit employed after fire is opened which may be called the "fire unit." During the last War the "approach unit" gradually increased in size. It started with single aircraft in 1914, and grew to flights in 1916 and 1917, finally ending with squadrons at the latter period. This was partly for defensive reasons, but mainly because of the necessity for opposing concentrations with concentrations. But the "fire unit" throughout the whole War remained the single aircraft.

In a previous discussion on this subject,¹ Wing Commander Andrews referred to the use of the unit of two used in the War. It is perfectly true that usually two aircraft did operate together, but that was because the attacking aircraft had to have another to guard its tail, since most of the fighting was between fighters. But the two did not really operate together as a "fire unit." Never in the War did two or more aircraft "tie themselves together" and fire as one rigid unit. It is true that initial attacks were frequently delivered in formation, but, from the moment when a pilot pressed his trigger, he ceased to worry about the relative position of the rest of his formation. It is true also that certain leaders made a practice of attacking in formation, but in these cases the attendant aircraft were merely tail-guards, and only the leader fired.

After the War, home defence became the main problem. The results of our home defence fighter attacks against the raiding Gothas had been most disappointing in spite of our numerical superiority. The Home Defence Brigade came to the conclusion that the chief cause of our failure lay in lack of organized tactics, and particularly in lack of con-

¹ See JOURNAL for May, 1932, p. 382.

centration of fire. The Brigade proposed the use of a fire unit of three aircraft in order to achieve this concentration combined with reasonable mobility. Modelled on these lines the system of attack was developed by Fighting Area, and to-day remains the same in general principle, that is, the approach unit of nine and the fire unit of three. Now, Wing Commander Andrews points out how the fire unit of three is likely to fail in actual war. He says: "Each fighter may select a separate target when co-operation ceases and the tactical unit becomes in effect reduced to one fighter: alternatively a pair of fighters may combine..."; and he urges the adoption of the unit of two as a reasonable solution of the problem. Many experienced pilots consider that the fire unit of three is not ideal. The question now becomes whether the unit of two does not suffer from the same disadvantage as the unit of three, only of course to a lesser degree, and would it not prove better in the end to adopt the first alternative, that of the fire unit of one. In home defence there is no necessity for a tail-guard and the only thing to decide is whether two aircraft can fire together as efficiently as they can independently. Whilst shooting, the pilots cannot look at each other, therefore the fire unit cannot concentrate on to one enemy for fear of collision. The fire unit of two must attack two separate enemy aircraft in the same way that the fire unit of three must attack three separate enemy aircraft.

It is interesting to speculate as to what would happen to the fire unit of three in war. Imagine a fire unit consisting of a war-experienced leader and two pilots who have not been under fire, diving to the attack. Each pilot is aiming at his pre-selected opponent, and therefore is not watching his flank aircraft. The dive commences in good formation, then the inexperienced pilots open fire at long range—as always happens—and pull away too soon. No. 3 may be more disturbed by the enemy's fire than No. 2, so that the pilots pull away in the order 3, 2, leaving the leader alone to attack at close range and subjected to concentrated enemy fire. The unit is now all over the sky, and time is wasted reforming for a second attack. Every pilot's idea of what constitutes effective range varies, as does his reaction to enemy fire, and it is difficult to see how any amount of peace-time drill can hold the three together in one unit when the guns are going. Thus the successful synchronisation of three such fire units is extremely difficult to attain; and in practice is found to demand whole-hearted co-operation from the "enemy" bombers.

Wing Commander Andrews draws a very true picture of the inherent weakness of the fire unit of three. The unit of two certainly is an improvement, but will be found in practice to be subject to exactly

the same disadvantages as the unit of three, only to a lesser degree. The only logical solution is to go back to the unit of one, and use what may be termed "organized individuality," allowing free scope to the fighter's great asset of mobility.

But if the unit of one failed so dismally against the Gotha raids, why attempt to revive it? The answer is that in the case of the Gothas there was little or no organization or tactics at all. Pilots went up singly to attack, often from different aerodromes. There was no "organized individuality." But picture an approach unit of, say, ten fighters in a position to attack above a closed V of, say, nine bombers. On the leader's signal, five fighters dive to the attack from above, each selecting his opposite number bomber, which allows of wide spacing for the initial attack. Having selected his enemy and opened fire, each fighter pilot forgets about the remainder of his formation. He sticks to his enemy, diving and zooming, till the enemy is destroyed, his ammunition fails, or he is recalled to his approach unit. The initial dive of the fighters may be together, but in half a minute or so it works out that No. 1, say, is diving whilst No. 3 is zooming. This will allow of more air space per pilot than if they attempted to work as one fire unit. Meanwhile, another five are doing similar work from below, but at closer range, since the enemy gunners will be occupied with the fighters above, and since such an attack is continuous, synchronisation of the upper and lower units is possible and easy. The employment of two-seater fighters is outside our present scope, but there can be no doubt that such an attack, combined with a two-seater fighter formation in front of and below the bombers would be extremely formidable.

The use of the fire unit of one, plus "organized individuality" allows for maintenance of the aim, since the attack is continuous and there is no reforming during action. It allows for surprise, since the enemy will be confused and surprised by the varied and uncertain position of the fighter; for concentration, since it is reasonable to expect that several fighters will be firing together, even though they may not know it and be widely apart. It can insure economy of force, since the units are being employed in the best way; mobility—the fighter's chief asset, since each is given completely free play; and finally, co-operation, since the continuous attack allows for synchronisation from above and below.

Such an attack would not look at all spectacular, and in fact, would present a distinctly ragged appearance after the initial dive. But it would be simple, practical and effective. It requires less training, allows for flexibility of numbers in squadrons, and is good training for

the type of war where the fighter is up against the fighter. It would resemble a team of three swordsmen fighting three opponents, each trying to synchronise the movement of his rapier with those of the other two rapiers. The fighter aircraft is the rapier of the air and must be given free play.

Due to its characteristics the natural role of the single-seater fighter is the attack of individual bombers, and it is, therefore, for consideration whether the breaking up of the bomber formation for the single-seater to exploit should not be done by two-seater fighters, long range guns or the bomb dropped from above. But whatever enemy the single-seater operates against, whether formations or single aircraft, it must retain its mobility to achieve success.

THE RECORDS OF THE VICTORIA CROSS

By J. PAINE

*"Look thro' the world—Is there prouder meed
Than the plain bronze Cross of the golden deed?"—HAROLD BEGBIE.*

THE Victoria Cross forms the subject of numerous volumes, and though naturally a certain sameness pervades the different versions of the deeds that won the treasured bronze, each record is marked by some characteristic that seems worthy of notice.¹

To the modest Britisher a book styled "How I Won the Victoria Cross" does not sound particularly inviting, yet a work bearing such a title actually left the press seventy-two years ago. The author, Thomas Henry Kavanagh, was one of the few civilians on whom the Cross has ever been conferred. To recapitulate the story of his journey through the enemy lines with Outram's despatches, when Sir Colin Campbell was making his final advance on Lucknow in 1857, is not necessary. His deed was a truly gallant one, but had he been a soldier there is little doubt that such a book would not have seen the light.²

Actually, the first records of the Cross appeared in 1856, the year of the Mutiny, when Lord William Lennox published his work, "The Victoria Cross: The Rewarded and Their Services," this being just a compilation, like many subsequent works, of the entries which had appeared in the *London Gazette*. In 1863, Thomas Carter of the Adjutant-General's Office devoted a section of the Crimean volume of his "Medals of the British Army and How They Were Won" to the V.C. deeds of that campaign; a previous work, "Curiosities of War," published in 1860, had already contained a similar record of both the Crimean and Mutiny exploits. Other products of the 'sixties include "The Victoria Cross: An Official Chronicle," and "Our Soldiers and The Victoria Cross," edited by S. O. Beeton, a collection of previously

¹ Since the institution of the Cross, no less than 1,159 awards have been made, including 88 to the Royal Navy, R.N.V.R. and R.N.R., 53 to the Cavalry, 4 to Chaplains and 4 to civilians. Prior to the late War, the regiment with the greatest number of Victoria Crosses was the South Wales Borderers, but this proud distinction is now held by the Rifle Brigade with 25 awards to its credit. The Seaforth Highlanders has won more Crosses than any other Scottish regiment; it also possesses a V.C. drum-major.

² The sword, shield and disguise used by Kavanagh for this exploit are in the R.U.S. Museum.

published articles which doubtless enough appealed to the younger generation of that day.

The next contributor to this type of history would appear to be Major W. Knollys of the 93rd Highlanders, whose book, "The Victoria Cross in the Crimea," published in 1876, was followed by two others from the same pen, one dealing with the awards in India and the other with those won in the Colonies. Next, in 1882, there appears on the scene Major W. J. Elliott with a volume, "The Victoria Cross in Afghanistan and on the Frontiers of India," the same year witnessing the publication of this writer's "The Victoria Cross in Zululand and S. Africa." Whether it was a commercial success or not would be interesting to know, but after these five volumes had been in circulation some time the publishers issued Knollys' and Elliott's "The Victoria Cross: By Whom It Was Won, etc.," which was, of course, a combination in one volume of the previously published works. This volume, which appeared in 1884, was not distinguished by its illustrations, and contained much matter which, though of considerable interest at the time, had little true bearing on the various acts which were rewarded with the decoration of which it purported to treat.

R. W. O'Byrne's "The Victoria Cross" published in 1880 was just a compilation of *London Gazette* notices, and was followed two years later by a sixpenny booklet bound in bright yellow paper covers and containing much nonsense written by Lieutenant-General H. J. Stannus. The fact that in the previous year this officer had given the public a book entitled "My Reasons for Leaving the British Army" will give readers a good idea of the type of man he was and of what may be found in his so-called contribution to the V.C. bibliography. P. L. Simmond's "The British Roll of Honour," published in 1887, sounds as if it might be devoted to the decoration, but it is in reality a record of the orders of knighthood, though it includes, as indeed it should, a list of the V.C. recipients. The last product of the 'eighties would appear to be a pamphlet published at Liverpool in 1889, written by J. H. McGovern and entitled "How One of the McGovern or McGauran Clan Won the Victoria Cross in the Indian Mutiny." This recipient was a private of the old 101st Foot, afterwards the 1st Royal Munster Fusiliers, who, under a heavy fire from the enemy's battery, carried a wounded comrade to a place of safety. The Crosses awarded up to the year 1889 were dealt with in a book published in 1890, bearing the title "The Victoria Cross: By Whom, Where and How Won."

Spirited illustrations are a feature of most of the V.C. books of the popular type, and one observes that Harry Payne was the illustrator of Walter Richards' "Heroes of Our Day: Recent Winners of the Victoria

Cross," published in 1891. The publication in 1897 of T. E. Toomey's "Heroes of the Victoria Cross" supplied a long-felt want, since it contained reproductions of photographs of many of the recipients. The record, moreover, was compiled by a soldier, an ex-colour-sergeant of the 1st Battalion The Royal Irish Regiment. Each of his succinct accounts of the exploits that won the decoration is accompanied by a miniature portrait of the recipient. The book has one failing: two hundred and twenty-eight photographs only were obtainable, whereas four hundred and eleven individuals had gained the Cross at the time of publication, which, in the plan adopted in the arrangement of the book, meant that one hundred and eighty-three recipients were unrepresented in the descriptive accounts by reason of the absence of their portraits. These luckless warriors only get a mention in the complete roll, chronologically arranged under campaigns, which precedes the portrait section. The index at the end consequently refers only to the illustrated recipients. Owing, also, to a peculiar freak of photographic reproduction, the V.C.s and medals appear in a few of the photographs on the wrong side of the soldier's tunic, despite the fact that when posing before the camera the sitter wore his decorations on the correct side. Nevertheless, Toomey's little volume is extremely interesting, if only for a perusal of what now seems a strange array of Victorian likenesses, conspicuous, many of them, by their "mutton chops" or bushy beards. Medals, it will be noticed, were not worn in the neat way which is the rule to-day, nor did the Victoria Cross apparently take precedence of all other medals on the tunic.

Two years before Toomey's book appeared, J. E. Muddock's "For Valour" and D. H. Parry's "Britain's Roll of Glory; or, The Victoria Cross, its Heroes and their Valour" made their appearance. The former is merely a compilation from the official accounts, but Parry's book is a very readable narrative, and has often been quoted by military writers. Stanley L. Wood illustrated it, and up-to-date editions left the press in 1898, 1906 and 1913. Frank Mundell's small popular volume, "Stories of the Victoria Cross," was also published in 1895.

Of the pre-War contributions to the subject, the best is undoubtedly the large handsome volume, "The History of the Victoria Cross," compiled by Philip A. Wilkins in 1904, when the number of recipients was five hundred and twenty. Portraits of no less than three hundred and ninety-two holders of the Cross are included in the work, a feature which accounts for its great popularity.

The year 1906 witnessed the jubilee of the Victoria Cross, and in commemoration of the event A. L. Haydon wrote "The Book of the V.C." This is quite a readable volume, but since it contains only a

selection out of the five hundred odd exploits that should have been narrated, one can hardly join with the author in his "hope that it will be accepted as a standard work on the subject." Errors have crept into almost all the V.C. works, and this one is no exception. It has a complete list of recipients but no index, and almost all the illustrations are poor, the one picture deserving of respectable reproduction, the grave of Lieutenants Melville and Coghill, being tucked away in the text. Portraits of recipients make the best illustrations in works of this description, for there are few painters, besides Desanges, who have given us the opportunity to make worthy reproductions of their pictures.

The award of seventy-eight Victoria Crosses for acts of gallantry performed in the late South African War provided several writers with the opportunity to provide the public with an up-to-date record. The compilation of a volume dealing solely with the recipients of that campaign would have been quite an acceptable work if each exploit had been treated in full, but authors chose to repeat the stories of all the older deeds of valour as well. Thus Kate Stanway in 1907 launched her little scarlet-covered "Sons of Valour. A Complete Record of the Victoria Cross Heroes from its institution to the present day." Each of the five hundred and twenty-two awards are treated in brief, as this very useful reference guide numbers less than a hundred and fifty small pages, and could be carried comfortably in the pocket. The handy index following this collection of narratives makes it possible to ascertain which of the recipients were living at the time of publication. The book naturally includes the dozen V.Cs. granted before and following the close of the Boer War for deeds of heroism in Ashanti, China, Somaliland, Nigeria and Tibet. The last mentioned is confined to the one award made to an officer of the 8th Ghurka Rifles, just over twenty-five years ago; it was the last V.C. granted before the Great War. One hundred and sixty facsimile signatures of V.C. recipients are included in the same authoress's larger work, "Britannia's Calendar of Heroes," published in 1909. The compiler of the two records just mentioned would appear to be the only lady prose contributor to the V.C. literature of pre-War days. But in verse Lady Lindsay dedicated a few lines to Lord Wantage, V.C., who as a Scots Guards officer in the Crimea won "the little bit of iron that beats them all," as she rather erroneously terms the cross made from a *bronze* gun taken at Sebastopol.

The best known poems dealing with the Cross are Sir Edwin Arnold's "The First Distribution of the Victoria Cross, July, 1856," and the "Ballad of the Victoria Cross," written by Harold Begbie shortly after the Boer War. Allusion should also be made to the collection of Desanges' pictures of Crimean and Mutiny V.C. exploits. Several

editions of the descriptive catalogue of this collection have been published. Unfortunately, these paintings are now in a ruinous state, owing to the neglect of the Wantage Urban District Council, to whom they were presented by Lord Wantage.

In addition, lists of V.C. recipients will be found in many publications, the best known among these being the roll of surviving holders, which for many years has been included in the "Army List" and "Whitaker's Almanac." A complete pre-War roll forms a feature of the fourth edition, published in 1910, of the standard work on medals, "War Medals and Decorations," by D. H. Irwin.

During the Great War rather more than 600 Victoria Crosses were awarded, 193 of this number having been conferred posthumously. Needless to add, several books of the popular order appeared whilst the War was in progress. "V.C. Heroes of the War," by G. A. Leask, M.A., published in 1917, being one of a few small works which dealt with certain of these outstanding deeds of heroism. If one can overlook the absence of illustrations, "The Victoria Cross: The Empire's Roll of Valour," compiled a few years ago by Lieut.-Colonel Rupert Stewart, M.V.O., late of the Duke of Cornwall's Light Infantry, is the best and most sober record hitherto published. The book is simply a collection of notices taken from the *London Gazette*, but every Cross ever awarded is included and, unlike the works of other compilers, it is arranged, not in order of campaigns, but regimentally. To compilers of regimental histories the volume is particularly useful. The first edition of this work appeared in 1916 as "The Book of the Victoria Cross." The previously mentioned books by Toomey and Wilkins were rich in portraits; now a third book possessing this attractive feature can be cited in the first volume of the three volume work, "The V.C. and the D.S.O.," compiled by E. M. Humphris and General Sir O'Moore Creagh, V.C. This work was originally issued in periodical parts in 1924, and must have entailed a vast amount of research. The book contains no less than 722 portraits, and is of particular interest since one of the compilers, now deceased, was a holder of the Cross.

All the foregoing works were devoted to awards of both the Army and Navy, but three years ago Vice-Admiral W. H. D. Boyle made a departure from the usual plan when he compiled his "Gallant Deeds," a volume published at Portsmouth and reserved solely for the Victoria Crosses conferred in the Great War on officers and men of the Royal Navy and Royal Marines.

THE ROYAL ARMY CLOTHING DEPARTMENT

By LIEUTENANT-COLONEL H. DE WATTEVILLE, C.B.E., late R.A.

AS the lease of the site, which the Royal Army Clothing Department has occupied in Pimlico for over seventy years, is now drawing to a close, the Army Council have decided to give up the premises existing at that place and to modify the system now in vogue for clothing the Army. That branch of the Department, which actually manufactures the clothing, that is the Clothing Factory, is already in process of reduction, whilst the remaining two branches, the Inspectorate and Stores, are to leave London and be housed at the Ordnance Depot at Didcot.

Although it may be regarded as little more than an integral part of the scheme of economies that have recently been forced upon the Army, the measure is in fact fraught with a deeper significance, and it might possibly end by involving further modifications in our present methods of clothing the soldier which are not yet clear. At present there is no question but that the Army is well provided with satisfactory articles of uniform and of underclothing, while it is recognised that the garments thus issued are of adequate quality and never less than of a reasonably good fit. That such a state of affairs exists can only redound to the credit of the Clothing Department. The actual type and pattern of the clothing that is supplied, as well as its frequency and scale of issue are not matters for which the Clothing Department, under the Royal Army Ordnance Corps, can be held as being primarily responsible. Consequently the disappearance of the familiar premises in Pimlico cannot affect these details, whatever other consequences it might ultimately involve, although it may lead to some inconvenience.

To understand the problems at issue in the whole question of clothing the soldier, it is necessary to consider the systems that have held the field in the past and to realize that the present Army Clothing Department is the result of much experience gained at the cost of many grave errors.

Three main systems have existed whereby the soldier's uniform, underclothing, arms and appointments have been, and are still, found. These are:—

- (1) Each individual soldier can provide his own clothes, arms and munitions. Such a method can only be satisfactorily

applied to armies based on a system of personal and compulsory service, and in the case of weapons, where the warlike equipment is of a simple kind not needing expensive or frequent renewal. Any material, such as artillery, can only be provided by the State.

(2) The entire equipment is provided by the regiment or unit, except the arms and munitions which are supplied by the State. Here again the system of regimental supply can be carried out in two ways; first that in which one individual—in the case of the British Army, until the Crimean War, the colonel of the regiment—provides the clothing in return for payment by the State; secondly that in which a regimental committee of officers deals with the whole question and procures the various articles, either in bulk or as required, from government factories, private or other sources, this being the system in vogue in the French army.

(3) The State can deal with the whole matter. In this case the provision of clothing may end by becoming a matter subject to detailed bureaucratic regulation and to strong centralized control.

In the British Army since the days of Crecy, all three systems have been tried, until, in the end, the prevalent method has been evolved by which the State through the Royal Army Clothing Department has found the clothing which has been issued to the men in return for payment made by them out of a fixed clothing allowance. This method is a virtual compromise between systems (1) and (3) above. How far the abolition of the Factory will affect that compromise—if at all—is not yet very clear. There are two decidedly divergent views on the matter which it is not proposed to discuss further, except to remark that, in the case of the Household Troops, it seems possible that there may in the end be an adoption of something approaching system (2).

The history of the clothing of the regular Army goes back to the Restoration of 1660, when each regiment of the Army was virtually the property of its colonel. He it was who issued clothing to the men in return for payment made to him by the Crown. From the outset the weak point in this system was the fact that the colonel was allowed to make all such issues a matter of profit to himself; these profits were regarded as his own legitimate pay, for in those days general officers as such received no pay whatever. The evil was to grow, until it came to be not only a veritable scandal but also a source of degradation to the individual soldier, since his clothing, as time went on, grew less adequate and still less conducive to good health. Provided appearances

were satisfied, little else mattered. To remedy growing abuse the Duke of Marlborough in 1707 was instrumental in the promulgation of a Royal Warrant by which the clothing of the soldier was fixed on an adequate scale. With the disappearance of the Duke, however, the Warrant gradually lapsed into oblivion until, during the latter part of the XVIIIth Century, the soldier's plight in the matter of clothing was if anything worse than in the late XVIIth Century. By the famous Burke's Act of 1792, as it is called, an end was put to many abuses by taking the regiments out of the virtual possession of their colonels. The soldier's lot was thereby considerably ameliorated. But the provision of his uniform remained in the hands of his colonel, who was officially still permitted to regard the soldier's clothing as the real source of his own emoluments.

So the matter went on till the terrible shortcomings of the Crimean War brought Army reform to the level of an urgent national question. As a result a Royal Warrant of 1854 decreed that the colonel of a regiment should receive only the cost price of the clothing as supplied by him to the troops, in addition to £600 per annum as compensation for the loss of his clothing perquisites. Then on 21st June, 1855, two further Warrants were promulgated by which the Secretary of State for War became responsible for the whole clothing of the troops. To this end a Director of Clothing was appointed, a position which came to be held by an able civilian, Mr. Ramsay, who continued in office until 1893. To him in great part must be attributed the organization of the work of the new Department which was then set up to deal with the soldier's clothing. The new organization did not make an auspicious start. The Crimean War had shown such grave abuses that a sound system of inspection seemed to be the urgent need of the moment. So the new Clothing Department became an inspection branch and was housed at Weedon. For a variety of reasons its work was so poor that a change soon became imperative. This was carried out with the result that the Department came to be housed at Pimlico in 1859 in the premises which are now to be abandoned.

At first the new establishment did not cater for the Army as a whole. The Foot Guards had maintained a special clothing branch in Westminster; but this shortly came to be absorbed in Pimlico. A yet more momentous change was to follow when, in 1863, an actual clothing factory managed by the State was started at Pimlico. This was followed by the absorption into the Factory of the manufacture of the clothing issued for the Royal Artillery and Royal Engineers in 1870.

The addition of this latter function to the Pimlico Department needs further explanation. In 1856 when the ancient Board of Ordnance was

suppressed in the great reorganization of the Army following on the Crimean War, the provision of the clothing of the gunners and sappers, previously carried out under contract by the Board, was transferred to a workshop which was founded at Woolwich and managed by a committee of officers. So successful was this system that, in 1863, a similar workshop was set up at Pimlico for the manufacture of Army clothing generally. The products of this new venture proved thoroughly satisfactory; so much so that the Pimlico establishment swallowed up the Woolwich workshop in 1870. The next step came in 1880 when Pimlico took charge of the provision of clothing to the Household Cavalry, State trumpeters and other gorgeously attired personages. In the meantime the Factory had gradually been called upon to produce the uniforms required by the Royal Marines, Royal Irish Constabulary, Yeomen of the Guard and many other Government services.

During this whole period of the growth of the Department centralization inevitably began to run riot. Regulations increased until in the 'eighties the clothing of the soldier became involved in endless coils of red tape which, as is usual in such cases, ended by costing money. Much of this grandmotherly procedure may, at first, have been warranted because, in the first moments of freedom from the parsimony of the regimental colonels' administration, the tendency had been to expect and to demand everything from the bottomless purse of the State. The process went on, and was even aggravated in 1881 when the soldier's clothing hitherto his private property, was made State property. Almost every single article of clothing now became the subject of office work. A reaction was soon experienced, but it was not until 1893 that the familiar distinction between public and personal clothing was introduced, while other steps led to further simplification in the work of clothing the Army. The great change, however, was the introduction, in 1893, of "compensation," that is the system by which the soldier received some cash payment in lieu of a new issue of such garments as were still fit to wear.

In the year 1899, acting on the recommendation of Sir Redvers Buller, the Royal Army Clothing Department was transferred to the military side of the War Department under what is now the Royal Army Ordnance Corps, which up to that date had only controlled the supply of clothing to the troops during active operations in the actual theatre of war. Since that date the duties of production, inspection and supply of clothing to the Army, both at home and abroad, have been part of the general duties and organization of the Royal Army Ordnance Corps. But there was still a good deal to be done since the compensation scheme of 1893 still left very much to be desired, and it was not until 1909

that the modern system of an issue of a free kit on enlistment and of the subsequent payment of quarterly clothing allowances finally led to a further simplification and decentralization of work. This change again might be ascribed as largely due to Buller's foresight and instigation.

The Factory itself was not so very much concerned in all these changes. Its best work lay in other directions. The first and chief task that lay before it was the elimination of redundant patterns. The regimental system of clothing had led to such a mass of divergent details of dress that in 1863 the Clothing Department had to supply over 8,000 different patterns of clothing. Such a plethora of detail could only set obstacles in any schemes of mobilization, let alone complicate the current supply for peace time needs. Within the next fifty years that huge total of patterns had decreased by some 60 per cent.

The task of the Department for the supply of clothing on mobilization should not be overlooked. The Department had already achieved a sweeping reorganization of such clothing when the universal adoption of service dress, which needs but the addition of trivial distinctions to render it capable of issue to all arms of the Service, further facilitated the matter. But apart from this, and even in the days when troops would mobilize in old time full dress uniform, the work of the Department was both efficient and understanding. Long before the arrival of Service dress, the Department had embarked on an extensive scheme of decentralizing its mobilization clothing stores. Indeed the difficulties in the way of any mobilization before the period of the South African War had been immense. Although many such obstacles were of the most trivial nature, their strength lay in the depths of the traditions of conservatism on which they were founded. The Army Clothing Department throughout this period did admirable service, while in the following decade the work then achieved may entitle it to some share of the praise bestowed on the mobilization of 1914.

The system of mobilization in the British Army is such that practically all reservists rejoin at their regimental depots where they are equipped and immediately sent to rejoin their regiments. That system came into force with the introduction of short service about the year 1870. The method of actual collection of the reservists' kits and clothing at the regimental depots was not, however, introduced until 1895; before that date the clothing was sent out from Ordnance on demand. Each reservist now on the books of the regimental depot is provided with a card which shows *inter alia* all his sizes and measurements. From these cards demands are made out in peace time for all the requirements of clothing, arms, accoutrements and necessities of the depots. When received from Ordnance these equipments are collected and sorted out

in the depot regimental store so that they can be issued without delay to each rejoining reservist as he presents himself. In order that only the latest and best patterns of clothing and necessities may be made available to the reservists on rejoining for war, they are inspected annually by the R.A.O.C. who order the turnover of all articles which show deterioration or are over five years of age. By this system there is no delay whatever in the equipment of the rejoining reservist. In the case of units which do not exist in peace, their equipment is stored and maintained by the R.A.O.C. within the Command Ordnance Depots or at Pimlico. These equipments are now to be stored at Didcot.

In addition to these reserves held in the regimental depots, there are the general reserves for an expeditionary force which, of course, are all held by the Clothing Department in their central stores. These general reserves are calculated on a scale to provide for wastage during the opening stages of war, and ready to be despatched to a theatre of war on a pre-arranged programme.¹

The Army Clothing Department is now being re-organized while the Factory is being reduced. The authorities may henceforth be able to clothe the soldier more cheaply than the Factory can do. But it must be borne in mind that the standard of Army clothing is now set by the products of Pimlico. Will that standard be maintained when once the Factory is closed? Will the civilian firms who now contribute a part, and a considerable part it is true, of the clothing needed by the Army, still be willing to work at as low prices, as is now done, when once the threat of the competition of the Factory is removed. That all remains to be seen. Much will depend on the efficiency of the inspection branch of the Army Clothing Department which is now to continue, in another place, the excellent work, which it has been performing since Crimean days.

¹ To illustrate the work of the Clothing Department during the Great War, the following figures may be of interest.

There were provided :—

Boots	40,000,000 pairs.
Shirts	45,500,000.
Socks	108,000,000 pairs.
Jackets	27,000,000.
Trousers	27,000,000 pairs.
Great Coats	9,000,000.
Cardigans	19,000,000.
Pantaloon	8,000,000 pairs.

Although the factories of the Department were only able to produce a relatively small proportion of these stupendous totals, it inspected and distributed the whole through the various channels of the R.A.O.C.

THE GOLD STANDARD

WHAT IT MEANS AND HOW IT WORKS

By LIEUT.-COLONEL DOUGLAS HOGG, M.C., *p.s.c.*, R.E.

ECONOMIC factors now play, directly or indirectly, an increasingly important part in all questions affecting national defence. It is, therefore, becoming necessary for officers of the combatant Services to have at least a general understanding of those financial influences which of late years have shaken the whole economic structure of the world. Recent events, such as our abandonment of the gold standard and the adoption of a system of tariffs, have stimulated considerable interest, but the average officer with little time or inclination to study the financial pages of his daily paper or the views of the city editor is wont to regard much of what these changes portend as something of a hidden mystery. Yet the main outlines of the subject are not unduly abstruse, and those who would gain a clearer insight into it will find that the essentials can be explained in simple language.

INTERNATIONAL TRADE AND THE BALANCE OF PAYMENTS.

Let us suppose that a Northamptonshire boot manufacturer has agreed to supply £1,000 worth of goods to a merchant in Calais, and that a firm of Parisian costumiers has arranged a sale of the same value to a store in London. Let us suppose also that the French franc stands at 125 to the £. In these circumstances, if the London trader were to send the Northamptonshire manufacturer a cheque for £1,000, and if the Calais merchant were to remit 125,000 fcs. to the Paris costumier, the payments arising out of the two transactions could be effected to the satisfaction of all parties, without a pound or a franc crossing the Channel. But this is not quite what happens. In practice, the transactions of international trade are rather more complex. They do not cancel out exactly, nor are they always on a reciprocal basis between two parties. For instance, under normal conditions, England exports to Brazil, Brazil exports to the United States of America, and the United

States export to England, and there is no convenient equality of payments due.

In such circumstances, the banks have come to act as an intermediary for payments.¹ The important banks of all nations maintain credits in foreign currency in all the main foreign financial centres, either by establishing branches of their own there or by arrangement with the existing foreign banks. A bank is thus in a position to make payments for its clients, in the appropriate currency, in practically any part of the world. Reverting now to the actual upshot of our original example, the London firm which bought costumes had its account with its London bank debited £1,000, and the Paris branch of that bank paid the Paris firm 125,000 fcs. In the same way, the Calais merchant, by paying his banker in francs, was enabled to settle his sterling debt to the Northamptonshire manufacturer. Let us now turn to the bankers' aspect of the matter.

The English bank in our example received £1,000 in England, and paid out 125,000 fcs. from its resources in Paris. Innumerable transactions of a similar nature occur, and the position soon comes about that the English bank is accumulating more sterling than it has any particular need for in England, but is running short of francs in Paris. By a similar process, the French bank is amassing francs in Paris but running short of sterling in London. The difficulties of both banks will disappear if the English bank transfers sterling to the London branch of the French bank, and simultaneously the French bank transfers francs, to an equivalent extent, to the Paris branch of the English bank. This is, in effect, what actually occurs on a larger scale between the banks of all countries.

We have now seen how international trading transactions, in so far as they cancel in value, can be paid for without any movement of currencies taking place. In reality, the foreign purchases and sales effected by the members of a community never exactly cancel out, and every country has to some extent a favourable or adverse balance of trade, the terms favourable or adverse being used to denote whether, on balance, the country is owed money by, or owes money to, the countries with which it trades. It must be remembered, however, that the payments arising out of trading transactions constitute only one category of the payments that have to be made between communities using different currencies. Now, let us consider some of the other items.

¹ *Note.*—The important part played by the bill of exchange in financing international trade is omitted for the sake of clearness. No difference in principle is involved.

Next to the value of its exports, on the credit side of the nation's account, come what are commonly called "invisible exports." These comprise the numerous services rendered by British firms and business men, closely connected with trading activity, for the benefit of foreign firms and individuals. Thus shipping, which in the miniature boom of 1920 reached the figure of £340,000,000, normally accounts for over £100,000,000; while financial and other services, including insurance, account for £70,000,000 to £80,000,000 a year. The item of interest payments to British holders of foreign investments totals, in favourable circumstances, over £200,000,000. On the debit side of the account, the main item is the value of imports retained (as opposed to those re-exported in the entrepot trade), and there are minor items of an "invisible" nature such as remittances to Englishmen resident or travelling abroad.

Some of the major bulk items, not arising out of trade, which figure in the account, call for a few comments. When one country makes a loan to another country, whether the parties to the transaction be governments or private investors or corporate bodies, the outward movement of the capital has the same effect on the balance of payments as the payment for a quantity of imports, and an entry on the debit side of the account results. Similarly the payment of interest on these loans, or of dividends on the investments, being a movement in the opposite direction, has the same effect as export transactions. The long-established habit of the English of foreign lending and investment has, by this time, resulted in very large holdings in securities abroad, and a large interest or dividend payment is due annually. During the period since the War, the inward flow of interest has always exceeded the outward flow of capital. Another series of items of similar effect is found in the inter-governmental payments arising out of the war under the heading of war debts and reparations. Lastly, we must notice the short-term deposits made in London by foreign financial interests seeking a safe temporary resting place for their surplus funds. These latter movements are highly sensitive to international confidence in financial stability in England, and to the crises which have come about with regrettable frequency in recent years. Although the inward movement of these items is "favourable" to the balance of payments, they are not particularly welcome, as they are liable to withdrawal at short notice in a crisis, as in the summer of 1931.

With this brief survey of the main items that go to make up the balance of international payments, we can now pass on to the working of the foreign exchange.

THE FOREIGN EXCHANGE.

The English gold sovereign has a content, fixed by law, of gold, $11/12$ fine, equivalent to 113.0016 grains of fine gold. Similarly, the currency of most civilized countries is normally based upon a coin which contains a fixed weight of fine gold as a standard. It follows that gold, as a metal having an intrinsic value of its own, not dependent upon a value arbitrarily stamped upon it by a mint under the orders of a government, is a sort of international currency in that it links together in a definite arithmetical proportion the currencies of all nations that rest upon a gold standard. For example, the gold sovereign is the absolute equivalent of 4.8665 gold dollars of the United States of America, and this ratio is known as the mint or gold parity. Consequently, in settling transactions between two gold standard countries, the physical transfer of the requisite quantity of gold, in bullion (bars) or specie (coin), is a valid and accurate method of payment, though it is usually a cumbersome and inconvenient one. To facilitate such a procedure, the Bank of England is compelled by statute, when the gold standard is in operation, to buy and sell gold at prices which tally closely with the gold content of the sovereign.

Harking back now to our original arguments, we saw that outward payments, e.g., from England to France, result in sterling being offered for sale and francs being demanded for purchase. In the ideal case, these activities would be balanced by the contrary effects of inward payments from France to England. If the demand for francs greatly exceeds the immediate supply, it is obvious that the price of the franc, measured in sterling, will rise, since the purchasers of francs must bid against one another to buy the inadequate supply; and those who have large quantities of sterling must accept a lower price for it, measured in francs, if they wish to dispose of it. In other words, the exchange goes against sterling.

It is here that the steadying influence of the gold standard, with the ability to make payments in gold, begins to be felt. For if the price of francs, measured in sterling, becomes too high, it may pay the English exchange dealer concerned to export gold bullion or specie, and so to pay his dues at mint parity. The actual figure of exchange at which the export of gold becomes profitable is determined by the expenses of export, including freight and insurance. These expenses, reduced to a minimum by the experience of professional bullion dealers, when added to the gold or mint parity, fix what is known as the "gold exporting point." In an exactly similar manner, an excessive movement of the exchange in favour of sterling is limited by the point at which it pays

the foreigner to send gold to England, the "gold importing point." As between two countries on the gold standard, therefore, the exchange can only move within the narrow limits set by these two gold points. Between these limits, currency or credit will be freely sold at the current market rates by houses which deal in exchange; at the limiting points, gold must inevitably start to flow, since everyone will always settle his debts in the cheapest possible manner to himself. Under pre-War conditions, the approximate figures between London and New York were:—¹

Gold Importing Point...	\$4.885
Par	\$4.8665
Gold Exporting Point...	\$4.845

If, owing to a prolonged adverse balance of payments, the foreign exchange of a country remains persistently at the gold exporting point, it is clear that a steady drain of the country's gold reserves will ensue, threatening ultimately to exhaust them. On the exhaustion of its gold reserves, the country is no longer able to make gold payments and is thus forced off the gold standard. Its foreign exchange, deprived of the steadying influence of gold, is free to fluctuate in accordance with supply and demand in the world's money markets. Actually, most countries will prefer, as England did in September, 1931, to abandon gold payments before the gold reserves are completely exhausted.

Under the conditions of a free exchange, when the currency of a country is no longer linked with gold, the ordinary laws of supply and demand operate, and the rate of exchange fluctuates accordingly, unrestricted by the gold points. In these circumstances, an adverse balance of payments, however caused, produces an effect on the exchange which tends automatically to correct the balance. Thus if the value of the £ sterling falls in relation to foreign currencies, the price of English produce, as measured in foreign currencies, becomes cheaper than before; the foreigner finds it easier to buy English produce, and exports are stimulated. On the other hand, the rise in the value of the foreign currencies makes foreign produce expensive for the Englishman to buy, and this checks imports. Two factors are thus set to work, each of which tends to rectify the debtor balance of payments.

At the risk of a digression, it will be convenient here to consider the effect of a large annual payment to be made by one government to another government. If the debtor country is on a free exchange, the annual payment depresses its exchange and stimulates its exports while checking its imports. This effect must go on up to the stage

¹ Taussig's "Principles of Economics," chap. 32.

where the debtor country, by means of its trade, has created a credit balance due to it from the creditor country, equal to and cancelling out the annual payment. By this means, the international balance of payments is actually balanced. The debtor country has in reality paid the creditor country in goods. If the debtor country is on a gold exchange standard, the same effect is produced, though rather more gradually, by the somewhat different procedure of the working of the gold exchange, as we shall shortly see. In either case it is clear that there can be no more short-sighted policy for a creditor country to adopt than to erect prohibitive tariff walls against its debtors. Such a policy leaves no alternative to the making of payments by the physical transfer of gold—so long as the debtor has any gold. From this, two results emerge. On the one hand, the creditor country tends to corner the world's limited supply of gold, with catastrophic effects on world prices which are outside the scope of this discussion; on the other hand, the debtor country suffers acute financial crises, and is forcibly prevented from honouring its obligations.

The effect of a free exchange is, as we have seen, automatically to adjust any discrepancy in the balance of payments. The fluctuations of a free exchange are apt, however, to be too sudden and too great for the smooth working of trade. Seasonal fluctuations in the flow of commodities, political events, speculative activity and many other considerations expose the trader to risks which are not legitimately his to bear. In consequence, the advantages to be derived from keeping the exchange on a gold basis, between the narrow limits of the two gold points are such as to commend themselves to most people for normal purposes. As we shall see, the adjustment of the exchange under a gold standard is not automatic, but depends on the correct operation of simple but delicate machinery.

CONTROL BY THE CENTRAL BANK.

The experience of English bankers has established the important fact that, except in times of panic, the demands for cash of depositors as a whole are adequately provided for if 10 per cent. of the amount of the deposits is available in liquid form. Thus deposits totalling £1,000,000 are a safe foundation for a super-structure of credit of £10,000,000, for the probable demands of the original depositors will not exceed £100,000, and the remaining £900,000 are idle and available to meet probable demands against £9,000,000 of credit given by the bank (much of which credit, be it observed, remains deposited with the bank either in the name of the borrower, or in the accounts of people to whom the borrower has paid it). Now just as a private individual

keeps his liquid assets in the form of, say, £5 in his pocket for current needs and, say, £100 on current account at his bank, so a bank keeps its liquid assets in two places. Coin and currency notes for day-to-day needs are held in the premises of the bank, and the balance is kept with the Bank of England. The position of the Bank of England, or of the central bank of any other modern community, has thus been not inaptly likened to the point of a great inverted pyramid of credit, the credit of the community. And it is clear that any expansion or contraction of the credit which the central bank may give to its customer banks, will be felt throughout the whole community, like the ever-widening circles of ripples when a stone falls into a pond.

Experience has also shown that the tendency of prices in a community is always, other things being equal, to vary directly as the quantity of money available in the community, the term money being used here to cover both currency and credit. Thus, if the quantity of money were suddenly doubled, prices would tend to double; if it were halved, prices would tend to halve. Up to a point, the truth of this is obvious, for if we have more money than before we shall certainly want to buy more things than before, but if all our neighbours are in the same position they will do the same; we shall bid against one another and the vendor will put up his prices, and in the outcome we shall all have bought the same number of things as before, at higher prices. Taking this in conjunction with our remarks on the banks, it is easy to see that expansion or contraction of credit by the central bank may affect the price level for the whole community. It now remains to see how this is brought about, and what further effects ensue.

We have already seen that there is no reason why payments should always turn out in perfect equilibrium, and that in fact they do not do so. Let us suppose first that the balance is running in favour of England, owing to the flourishing state of our export trade, our shipping, and our foreign investments. The barometer-like indication is given by the rise of the foreign exchanges towards the gold import point. This rise, if allowed to remain unchecked, will ultimately lead to the influx of gold to England. Unless our gold reserves are unduly low, the Bank of England will probably intervene before this happens, as the excessive accumulation of gold is no part of the working of the gold standard. The Bank of England can act in two ways. Firstly, it may lower the bank rate.¹ This will reduce the rate of interest payable on foreign

¹ The bank rate is the official minimum rate charged by the Bank of England for discounting first-class bills of exchange. For reasons which we need not discuss here, it directly affects the rate of interest paid on deposits or charged on loans.

funds coming to London, thus discouraging the flow of foreign money to England, and possibly even causing its withdrawal. The balance of payments is thus directly affected. Moreover, a reduction in the bank rate lowers the price at which money can be borrowed and thus cheapens credit. Secondly, the Bank of England may buy securities in the open market. This increases, to the extent of the value purchased, the deposits of the banks at the Bank of England, thus increasing their liquid assets. As we have already seen, this sets in motion a widespread expansion of credit, and causes a general rise in prices. This rise in prices acts as a check on our exports, while at the same time increasing our ability to purchase foreign produce, and thus serves to correct both sides of the disequilibrium which has come upon the balance of payments. If the Bank of England failed to take the appropriate measures in time, the influx of gold would itself take effect. For unless the Bank of England elected to leave a mass of gold sterile in its vaults, this increase in its liquid assets would provide it with the means of expanding credit with the results we have just described.

If, on the other hand, the balance is tending to go against England, owing to the languishing state of the export trade and shipping, or to the importunity of our creditors and the impecuniosity of our debtors, converse action will probably be taken by the Bank of England. A raising of the bank rate will tend to attract, or at least to retain, foreign funds, and it will restrict credit by making borrowing more expensive. The selling by the Bank of England of securities in the open market will correspondingly reduce the deposits of the banks, and will thus contract credit. The resultant fall in prices will stimulate the export trade and discourage the entry of imports, once more correcting both sides of the balance of payments.

To sum up, the automatic processes which, on a free exchange, tend to correct any disequilibrium in international payments, are replaced, on a gold standard, by the deliberate action of a central bank—in our case the Bank of England. The correct reading of the financial barometer, and the taking of correct decisions thereon, are consequently of the first importance. It may seem strange that such an all-powerful agency as the Bank of England should be in most respects completely independent of the Government. If it were operated in practice as a purely profit-making concern, there would be considerable justification for the school of thought which advocates that it should be placed under governmental control. By tradition, however, the Bank of England is as much a national institution in its outlook as any government, and its policy is certainly more continuous. In such circumstances, the strictly logical arguments lose much of their force.

CONCLUSION.

In the summer of 1931, a succession of financial crises in Europe, and a consequent demand for immediately available liquid resources, led to the withdrawal of foreign balances from London. Simultaneously, doubts began to circulate as to the financial stability of England. Our vast expenditure on unemployment relief and the difficulty of balancing our national budget seemed to lend force to these doubts, and symptoms of panic appeared. The exchange moved against sterling to the gold export point, and gold flowed from England at a rate which threatened rapidly to exhaust our gold reserves. Efforts were made to stem the flow by loans from the United States of America and France in the form of dollar and franc credits, but these were of no avail. On 21st September, 1931, the Government suspended the gold standard. Apart from these immediate factors, it is commonly, though not unanimously, considered that the steady tendency of the balance of international payments to become ever more adverse to England must have produced the same result before long, even if the crisis of 1931 had been overcome. In any event, we are entitled to ask what happened to the working of the gold standard that these untoward events should have come about?

There is general agreement that the traditional methods of restoring the balance of trade by means of a high bank rate and contraction of credit failed to work, and that this failure was due to the rigidity of our present economic structure. The powerful opposition of the trade unions to wage cuts, and the general reluctance to reducing the standard of living of the working man, have helped to prevent that cheapening of production which is the main object of contracting credit. On the other side of the scale, it is argued that the gold-holding countries have failed to rise to their responsibilities in expanding credit and in lending abroad to the extent called for by their creditor positions. In this latter connection, Professor Gustav Cassel¹ points out that there are two normal methods of adjustment of an unequal balance of payments: for large differences, loans by the creditor country to the debtor, and for small differences, gold shipments. He does not consider that the gold standard can be expected to work under the abnormal conditions of international payments which obtain to-day. Many economists feel that the system of working the gold standard, as understood hitherto, is inadequate and obsolete, so that constructive suggestions for a modified system have been put forward. But this problem is outside the scope of this paper, and, in any case, opinion has yet to crystallize on the subject.

¹ City Notes, *The Times*, 5th February, 1932.

THE INTERNATIONAL SITUATION

THE DISARMAMENT CONFERENCE

SINCE the last issue of the JOURNAL, a number of new proposals for the limitation of armaments have been made, which at least saved the Conference from complete disintegration. Previous to the receipt of these proposals the General Commission of the Conference adopted two resolutions; these were:—

- (a) That the Conference approved the principle of "qualitative disarmament"—i.e., that certain classes or descriptions of weapons should be absolutely prohibited or internationalised;
- (b) That land, sea and air armaments shall be examined by Special Commissions with a view to selecting those weapons whose character is the most specifically offensive or those most efficacious against national defence or most threatening to civilians.

Three Special Commissions, dealing with Naval, Land and Air Armaments respectively, and a Special Committee on Chemical and Bacteriological Weapons, were duly appointed. They rendered their reports at the end of May and early in June. As forecasted in these Notes last quarter, the reports, with the exception of that on chemical and bacteriological weapons serve chiefly to emphasize the diversity of opinion on the technical aspects of these problems.

THE NAVAL COMMISSION.

One of the main points on which the various representatives on the Naval Commission were in general agreement was that "nearly all naval weapons possess to some extent both an offensive and defensive character" and that the question of whether their character is mainly offensive or defensive may vary according to the circumstances of the different countries.

The German representative reiterated the assertion that the provisions of the Versailles Treaty contained the reply to the question, in that the terms were designed expressly to make it impossible for his country to adopt an aggressive policy.

CAPITAL SHIPS.

Britain, the United States and Japan maintain that the capital ship is not specifically offensive, not most efficacious against national defence, and not most menacing to civilian populations. Although they possess fighting qualities superior to other types of vessels, they cannot operate independently of other types and are among the least efficient naval weapons for independent operations against merchant commerce. But, for countries with great maritime interest, long coast-lines, and vital lines of sea communications, the capital ship is essential as the backbone of their defence forces.

The lesser Powers, including France and Italy, are practically unanimous that the capital ship is an offensive type, that it is efficacious against national defence, and that it threatens the civil populations. This is a natural attitude for them to take up, because if the three principal Sea Powers could be induced to agree to the general abolition of capital ships it would go far to reduce the superiority of those Powers in naval strength—and incidentally their capacity to defend their greater maritime interests.

AIRCRAFT CARRIERS.

Britain, the United States, and the Argentine hold that aircraft-carriers are not an offensive type. As warships they are most vulnerable. As regards the aircraft carried, the question of whether they can be regarded as offensive must, in the view of the first two Powers, depend upon the nature of the machine; but the United States claims that the air-armament of these ships is so limited in quantity and quality that it would be ineffective against the coasts of another country protected by shore-based aircraft. France concurs generally with these views but is joined by the Argentine in stating that if a State adopts a policy of aggression, aircraft-carriers are, then, offensive, efficacious against national defence, and threatening to civil populations.

As might be expected, Italy and the host of small Powers which do not possess aircraft-carriers regard them as an offensive type of warship; Germany emphasizes that they would be specially efficacious against a country that does not possess a sufficient air defence.

Japan, possibly with an eye on the United States' huge carriers and the largest naval air service in the world, also maintains that these warships are specifically offensive in that they can make surprise attacks against inland regions, they enhance the capacity of a fleet for attack and, being a new arm, they may serve destructive purposes as yet unforeseen.

SUBMARINES.

In the British and Argentine view the submarine is a type of vessel which should be classed as "most threatening to civilians." By the nature of her construction she cannot accommodate a sufficiently large crew to enable her to provide a prize crew for a captured merchant ship, while she is weak and vulnerable on the surface should the merchant ship exercise her historic right to resist capture. Under the London Naval Treaty she is bound by the same rules as the surface ship, but the fact remains that "the temptation to use the submarine in an inhuman manner will inevitably be greater than the temptation so to use surface ships." Yet, in the opinion of these two Powers, the submarine cannot be regarded as "most specifically offensive," in that it will not enable an aggressor rapidly to break down the defence of a state. Although it can be very efficacious against national defence if used in a manner contrary to the rules of the London Naval Treaty, yet it cannot be singled out from amongst other naval weapons as being "most efficacious against national defence."

The United States, while agreeing with Britain that the submarine is "specifically threatening to civilians," also maintains that it is an offensive type in relation to national defence, more particularly on account of its capabilities for decisive effect in sudden operations against the naval defence forces of another Power. Submarines in the possession of the country attacked do not afford an adequate defence against such an operation.

France, Italy, Spain, Finland, Latvia, Poland, Roumania, Siam and Venezuela hold that "submarines possess at the same time the character of either an offensive or a defensive arm." They are able to co-operate in many defensive operations (protection of a coast against bombardment or a disembarkation, protection of convoys, etc.). They also contribute to naval defence and to the sea-borne attack, or the blockade of an enemy country. Submarines, they argue, have the same rights and are bound by the same obligation as surface ships in regard to the search, capture, seizure and destruction of merchant ships. So long as they adhere to the rules laid down in Part IV of the Treaty of London—and it must be conceded that the commanding officer of a submarine will obey the instructions of his government as implicitly as the commanding officer of a surface vessel—they are not particularly threatening to non-combatants.

The attitude of the lesser naval Powers is really summed up in the statement that: "by its very existence and by the uncertainty as to the place and degree of the danger which it constitutes, the submarine is the best defence of small or medium navies . . . its abolition would

be equivalent to increasing the inequality between the weak and the strong." In an article entitled "The Weapon of the Weak,"¹ Admiral Sir H. W. Richmond seeks to show that this is a fallacy; but it is doubtful whether his arguments will convince these smaller Powers that their view is not logical. Japan, the third greatest sea Power, supports their claim to the extent of saying that the submarine is definitely a defensive weapon, and one which is indispensable for the defence of a Power with an inferior navy.

In the light of these contentions, it appears futile for the British and American Governments to put forward again and again proposals for the abolition of submarines. Such proposals are merely regarded by the majority of other Powers as being disingenuous.

What is of the highest importance is that, unless submarines are limited in size and number, Britain should free herself from the limitations of the London Naval Treaty as regards size and number of destroyers—one of their most effective antidotes.

THE LAND COMMISSION.

The Land Commission confined their enquiries mainly to artillery, armoured vehicles and fortifications. Their report is not unfairly summed up by the Soviet delegation in a protesting note, which says that instead of answering the questions (set by the General Commission) the Land Commission repeats the opinions of their Committee of Experts "in an interminable series of technical arguments." The Report certainly leaves the impression that there is little if any basis for any extensive agreements under these three headings.

ARTILLERY.

Agreement on the subject of artillery was limited to:—

- (a) The fact that it can be used for offensive and for defensive purposes, but its offensive capacity becomes greater as its power and range increase;
- (b) The types of artillery most threatening to national defence are those capable of destroying permanent fortifications of considerable strength. But it is noted that questions arising from the fact that fixed artillery and mobile artillery can be interchangeable are involved;
- (c) In a lower category of inferior power should be included pieces of a calibre of 250—100 mm. (10—3.9 inches). But here, at once, opinion was divided as to the calibre above which artillery becomes definitely "offensive," while certain

¹ See p. 497 of this JOURNAL.

delegations considered that the higher calibres within this range are more necessary for national defence than threatening to it. A variety of views are also expressed regarding the range at which artillery must be regarded as being "most menacing to the civilian population" having regard to its legitimate use against objectives of military importance, such as reserves, motor transport, railway stations, air ports, armament factories, etc.

ARMoured FIGHTING VEHICLES.

The first difficulty which arose was to obtain agreement on what was a tank and what was an armoured car. It seems to have been generally agreed that there is no clear technical distinction between light tanks and armoured cars, but a large number of delegates eventually subscribed to the view that :—

- (a) Tanks are fully armoured, self-propelled vehicles, designed to cross broken ground, usually by means of tracks, and to overcome obstacles on the battlefield. They are primarily . . . for employment on the actual battlefield, but the lighter types are also utilized for reconnaissance ;
- (b) Armoured cars are armoured, self-propelled vehicles, primarily for employment on roads, with the possible addition of limited cross country capacity conferred by multi wheels, four drive or semi-track device. Their chief characteristics are great range and speed on roads, but they have only a slight capacity for crossing trenches. Their role is reconnaissance and they are useless for attack against any form of organized defensive position.

Even so, there remained a marked divergency of views on the fundamental questions, whether, and if so, to what extent armoured vehicles were offensive weapons.

Tanks.—A large number of delegations considered that all tanks should be included in the "offensive" category, particularly, on account of their capabilities for surprise attack. This group were of opinion that whatever their utility for defensive purposes, it is far outweighed by the menace which they constitute in the hands of an aggressor.

Another large group of delegations made distinctions between heavy and light types. Tanks of 20-25 tons and upwards, they maintain, should come within the scope of qualitative disarmament, but tanks of a lower weight are definitely less offensive and should not be debarred.

Yet another view was expressed by the French delegation, who argued that very heavy tanks are, by their nature, largely restricted to

the area prepared for their action, while light tanks may be able to exercise effective action against important battlefield constructions. For these and other reasons they are of opinion that any discrimination between armoured vehicles according to weight is not technically justifiable; moreover "armoured fighting vehicles of less than 70 tons . . . cannot be regarded as being offensive rather than defensive in purpose, and cannot be included among the weapons *most* menacing to national defence." On account of the small range of their guns and the fact that they are normally only employed against visible military objectives, they should be regarded as among the weapons least menacing to civilian populations.

Armoured Cars.—Certain delegations were in favour of abolishing all armoured cars; these were included in the group which regard all tanks as offensive weapons; but other delegations of this group would exempt armoured cars, or only include them if they are "provided with special appliances rendering them capable of being used on the battlefield."

Mobile Cupolas and Armoured Trains.—Generally, it was accepted that "mobile cupolas are not capable of any action outside the battlefield. As regards armoured trains, their possibilities of action against military objectives outside the battlefield and against the civil population depend on the range of their artillery and the action of any personnel they may carry." Normally, therefore, neither of these weapons could be regarded as "offensive." Some delegations, however, took the opposite view.

FORTIFICATIONS.

Such was the diversity of views on the question as to whether fortifications were offensive or not that the Commission could only forward the observations of various delegations to the General Commission without comment.

Briefly, the German and Afghan delegations represented the view that fortifications near the frontier of a country which has none or where the fortifications are weak, are aggressive in character because they can be used to cover the accommodation of troops and materials for a surprise attack.

The French delegation, on the other hand, represented the view that permanent defensive systems situated in the immediate vicinity of frontiers could not be specifically threatening either to national defence or to civilians.

The opinions expressed by other delegations modified or qualified these opposing views in a variety of ways.

THE AIR COMMISSION.

The Air Commission prefaced their general conclusions by pointing out that the offensiveness of air armaments and the threat they represent to civilians must vary considerably on account of wide differences in geographical position, the location of vital centres, and the state of anti-aircraft defences. Subject to these qualifications they find that :—

- (a) All air armaments can be used to some extent for offensive purposes, without prejudice to the question of their defensive use.

If used in time of peace for a sudden and unprovoked attack, air armaments assume a particularly offensive character. In effect, before the State victim of the aggression can take the defensive measures demanded by the situation, or before the League of Nations or States not involved in the conflict could undertake preventive or mediatory action, the aggressor State might in certain cases be able rapidly to obtain military or psychological results, such as would render difficult either the cessation of hostilities or the re-establishment of peace ;

- (b) Civil aircraft, to the extent that they might be incorporated into the armed forces of a State, could in varying degrees subserve military ends ;

- (c) Independently of the offensive character which air armaments may derive from their use, their capacity for offensive action depends on certain of their constructional characteristics ;

- (d) The possibility of offensive action of aeroplanes carried by aircraft carriers or warships equipped with landing platforms (or landing decks) must be regarded as being increased by the mobility of the vessels which carry them.

The rest of this Commission's report is largely taken up with technical discussions on what are the most offensive types of aircraft and air weapons against specified objectives, and there are seen to be a curious assortment of national groups holding divergent views on issues which, as the Hungarian delegation point out, seem to have little to do with the main problem. There is, however, general agreement that "the air armaments most efficacious against national defence may also in certain circumstances be the most efficacious for their own national defence."

Germany, Austria, Hungary and Bulgaria, plaintively assert that for countries which are denied both a military air force and anti-aircraft defences, all military aviation is aggressive.

There can be little doubt that the abolition of all military aircraft, including those for use with the sea and land forces, would be a real "relief in armaments," but such a proposal is complicated by the fact that civil aviation is firmly established and will undoubtedly expand, which means that civil aircraft will always have appreciable military potentialities. Again, certain Continental countries undoubtedly regard aircraft, like submarines, as being a necessary and economical form of defence, while Britain with her vast responsibilities for maintaining good order in semi-civilised or uncivilised countries has found them to be a great asset, which, if it were lost, would entail greatly increased expenditure on land forces with, in certain cases, less efficiency in control.

THE CHEMICAL AND BACTERIOLOGICAL COMMITTEE.

This Committee, as might be expected, was able to present a unanimous report, for, in theory at any rate, chemical and bacteriological weapons have long been "outlawed" by international agreement; yet, in the late war, the former appeared—first on one side and then, inevitably, on the other. Since then they have been "outlawed" repeatedly whenever any conference dealing with arms has been called into being. The resolutions of this Committee, however, were more specific than any which have hitherto been formulated.

CHEMICAL WEAPONS.

Chemical substances and appliances for releasing them can only be regarded as weapons if they are used as such, for they may be employed or made for essentially peaceful uses. But qualitative disarmament should include the use for the purpose of injuring an adversary of all natural or synthetic noxious substances, "whether solid, liquid or gaseous, and whether toxic, asphyxiating, lachrymatory, irritant, vesicant or capable in any way of producing harmful effects on the human or animal organism . . ." While, however, projectiles specially constructed for the utilisation of such noxious bodies should be debarred, it is observed that, unless the use of explosives as such is included in qualitative disarmament, this definition cannot include noxious substances arising from the combustion or detonation of such explosives. Smoke or fog, used to screen objectives or for other military purposes are also excluded from the definition.

BACTERIOLOGICAL WEAPONS.

The use of pathogenic microbes for the purpose of injuring an adversary is condemned in every form.

INCENDIARY PROJECTILES.

As they involve a particularly grave menace to civilians, projectiles specifically intended to cause fires should be included in qualitative dis-

armament ; but this does not apply to projectiles specially constructed to give light, to pyrotechnics not intended to cause fires, or to projectiles of all kinds capable of producing incendiary effects accidentally.

SUMMARY.

The elaborate efforts which have been made to classify weapons as "offensive" or "defensive" have manifestly failed. Obviously the answer depends upon the circumstances in which they are being used. The futility of such an academical discussion has been pithily summed up in the answer to the question "is a gun an offensive weapon"—"it depends at which end of it you are!"

MR. HOOVER'S PROPOSALS FOR REDUCING ARMAMENTS

On 22nd June, Mr. Gibson, principal American delegate to the Disarmament Conference communicated proposals from Mr. Hoover, President of the United States, for the reduction of armaments on a basis of the abolition of certain weapons regarded as being particularly "offensive" in character, and a one-third cut in all remaining weapons and forces.

LAND FORCES.

Mr. Hoover proposes that all tanks, all chemical warfare and all large calibre guns be abolished, but this would not prevent the establishment or increase of fixed fortifications of any character for the defence of frontiers and sea coasts.

He further proposes a reduction of one-third in the strength of all land armies over and above the so-called police components. Land armaments, he explains, may be considered as having two functions—the maintenance of internal order, and defence against foreign attack. The first necessitates a certain strength which has been called the "police component," the second the "defence component." It is not suggested that these be separated, but it is proposed that the reduction should be on a scale of one-third of the "defence component."

AIR FORCES.

He proposes that all bombing aeroplanes should be abolished and that all bombardment from the air should be totally prohibited.

NAVAL FORCES.

Mr. Hoover's proposals for reducing navies include :—

- (a) The reduction by one-third of the Treaty number and tonnage¹ of battleships ;

¹ The American proposal is for a reduction in the collective tonnage of the Class, not for a reduction of the 35,000 tons limit for each unit. *Vide* the British proposals in this connection.—EDITOR.

- (b) The reduction by one-fourth of the Treaty tonnage of aircraft carriers and destroyers ;
- (c) The reduction by one-third of the Treaty tonnage of submarines, and no nation shall retain a submarine tonnage greater than 35,000 tons.

It is observed that the relative strength in battleships and aircraft carriers as between the five leading naval Powers was fixed by the Treaty of Washington, and the relative strength in cruisers, destroyers and submarines was fixed as between Britain, the United States and Japan by the Treaty of London. It is suggested that, for the purpose of these proposals, the French and Italian strengths in cruisers and destroyers be calculated as though they had joined the Treaty of London on the basis approximating the so-called accord of 3rd March, 1931.¹

GENERAL.

Mr. Hoover claims that acceptance of these proposals would effect enormous savings in the cost of new construction and replacement of naval vessels. It would also save a large amount of the operating expenses of all nations in land, air, and sea forces ; and it would greatly reduce the offensive strength as compared with the defensive strength in all nations.

THE BRITISH PROPOSALS.

On 7th July, Mr. Baldwin, in the absence of the Prime Minister at Lausanne, made a statement in the House on British policy in regard to disarmament, and commented on Mr. Hoover's proposals. At the outset he cordially welcomed the declaration of the American President because it called for a substantial measure of disarmament, and because it sought to apply the principles of both qualitative and quantitative limitation. He agreed, too, that "reduction should be carried out not only by broad general cuts . . . but by increasing the comparative power of defence through decreases in the power of the attack."

He then proceeded to give details of the proposals of the Government of the United Kingdom, not, as he explained, as a declaration of isolated action, but as a contribution to general agreement. He emphasised that Britain, like the United States, finds her strongest arm in the Navy and that, in advance of the General Disarmament Conference, she had already made contributions to disarmament on the largest scale in respect

¹ This "so-called accord" was proclaimed at the time as being a great achievement of statesmanship which had brought about an agreement between France and Italy, thereby completing the London Naval Treaty. In less than a month it had failed over questions of new construction.—EDITOR.

to that Service—a statement which was received with Ministerial cheers. But the Government now offered a further contribution as part of a general world settlement—a remark which called forth Opposition cheers.

LAND FORCES.

The Government are largely in accord with President Hoover's proposals for reduction of land armaments. British forces, including not only British troops in Great Britain and her Colonies, but also those maintained in India, have already been reduced to the minimum numbers required for the preservation of internal order and for the defence of their oversea possessions and communications. The personnel before the war was 259,000; it is now only 207,000.

Britain has already proposed the abolition of all mobile guns of a calibre greater than 6.1 inches (155 mm.), and of tanks of 20 tons weight or more.

Tanks of the lighter type cannot be regarded as specifically offensive weapons, and, in a small enlisted army like ours, they are an essential compensation for lack of numbers. Any general prohibition of this weapon would necessitate an increase in the man power of our land forces.

In effect, Britain has already put into practice a measure of land disarmament which more than conforms with the standards in the American proposal.

NAVAL PROPOSALS.

It is essential that proposals intended for general adoption should make due provision for varying circumstances. Having regard to the widely scattered responsibilities of the British Navy, it is not practicable for us to cut down the number of naval units beyond a certain point. Occasions may arise when these responsibilities call for the presence of ships simultaneously in parts of the world far removed from one another. Very large reductions in the number of ships in all categories have already been made by the British Commonwealth. Indeed, cruiser numbers will require special consideration hereafter.

Nevertheless, a large diminution in naval armaments can be achieved by other means than that of reducing the number of units. The proposals of the Government of the United Kingdom are:—

- (1) The maximum size of any future capital ship to be reduced to 22,000 tons, and the maximum calibre of the guns carried to 11 inch;
- (2) The maximum size of cruisers hereafter constructed to be reduced to 7,000 tons, and the maximum calibre of guns to 6.1 inch;

- (3) If international agreement on point (2) cannot be secured, the Government of the United Kingdom would still urge that the maximum size of capital ships should be reduced to 25,000 tons and their guns to 12 inch as a maximum ;
- (4) The maximum for aircraft-carriers to be reduced to 22,000 tons with 6.1 inch guns ;
- (5) Submarines to be abolished ;
- (6) Destroyer tonnage to be reduced by approximately one-third, this depending on the abolition of submarines ;
- (7) If submarines cannot be completely abolished, fix their maximum surface displacement at 250 tons, with a strict limitation both of total tonnage and of number of units.

AIR PROPOSALS.

There is no more vitally urgent aspect of international disarmament than the adoption of effective measures to preserve the civilian population from the horrors of bombardment from the air. The Government of the United Kingdom is prepared to go to any length with other Powers to achieve this object. They propose :—

- (1) The complete prohibition of all bombing from the air, save within limits to be laid down as precisely as possible by an international convention. Attacks upon the civilian population would be entirely prohibited ;
- (2) A strict limitation in the unladen weight of all military and naval aircraft (troop-carriers and flying-boats excepted) ;
- (3) A restriction in the numbers of all kinds of military and naval aircraft.

It is observed, however, that owing to her scattered colonial possessions and increased responsibilities due to her various mandates from the League of Nations, Great Britain, more than any other Power, relies on aircraft to discharge her duties for policing and controlling undeveloped regions. Yet, in 1932, her first line aircraft have been reduced to only 20 per cent. of her post-War strength, with the result that the United Kingdom, once one of the two leading air Powers, now stands only fifth. Moreover, 20 per cent. of the aircraft actually approved by Parliament for Home defence in 1923 have not been constructed.

END OF THE FIRST SESSION

The first session of the Disarmament Conference ended on the 23rd July. The report of the progress made since it opened in February last, as approved by the General Committee, shows that the results achieved so far are very meagre.

The Conference recommends an extension of the Arms Truce for four months from November, 1932. A meeting of the Bureau is to be called at Geneva on the 21st September to approve a Convention on the basis of the principles embodied in the General Committee's resolution, and to prepare for the second Session which is to open at the end of January or early in February, 1933.

The text of the resolution of the General Committee as framed by Sir John Simon and afterwards filled in by M. Benesh, *Rapporteur* to the Committee, opens with generalities welcoming heartily the Hoover proposals, declaring that a substantial reduction in world armaments shall be effected, and that a primary object shall be to reduce the means of attack. Endeavour is then made to enumerate certain points on which it is claimed that agreement has now been reached, and which it is desired shall be regarded as the basis of further reductions.

AIR FORCES.

Air attack against the civilian population shall be absolutely prohibited. All bombardment from the air shall be abolished, subject to agreement with regard to measures for the purpose of rendering effective the observance of this rule. These measures to include (a) a limitation by number and a restriction by characteristics of military aircraft; (b) civil aircraft to submit to regulations and full publicity. Where they do not conform to specified limitations they shall be subjected to an international regime to prevent effectively their misuse.

LAND ARMAMENTS.

All heavy land artillery of calibres between any maximum limit as determined in the succeeding paragraphs and a lower limit to be defined shall be limited in number.

The limitation of calibre of land artillery shall be fixed by the Convention. Subject to an effective method being established to prevent the rapid transformation of guns on fixed mountings into mobile guns, different maxima for the calibre of land guns may be fixed as follows:— (a) a maximum limit for the calibre of coastal guns, which shall not be less than the maximum calibre of naval guns; (b) a maximum limit for the calibre of guns in permanent frontier or fortress defensive systems; (c) a maximum limit for the calibre of mobile land guns (other than guns employed for coastal defence).

It is agreed that the maximum unit tonnage of tanks shall be limited.

Chemical, bacteriological and incendiary warfare shall be prohibited under the conditions unanimously recommended by the Sub-Committee.

The resolution also dealt with the work which the Bureau is to perform during the period of adjournment of the General Committee.

NAVAL ARMAMENTS.

The Conference invited the Powers which are parties to the Naval Treaties of Washington and London to confer together and report to the General Committee, if possible before the resumption of its work, as to further measures of naval reduction which might be part of the general programme of disarmament. It further invites the naval Powers other than those who are parties to the above Treaties to make arrangements for determining the degree of naval limitation they are prepared to accept in view of the Washington and London Treaties and the general programme of disarmament envisaged in the present resolution.

A PERMANENT DISARMAMENT COMMISSION.

It is proposed to set up a Permanent Disarmament Commission with such powers as may be deemed by the Conference necessary "to enable the Commission to be effectively applied."

The resolution drafted for the General Committee was supported by the Delegations of forty-one Powers; two opposed it and eight abstained from voting. The opponents were Germany, who demanded the inclusion of a political clause recognising equality of rights between States, and Soviet Russia, which refused to accept any resolution which did not commit the world to a definite degree of quantitative disarmament. The abstaining Powers were Afghanistan, Albania, Austria, Bulgaria, China, Hungary, Italy and Turkey. The Chinese delegate, while approving the resolution said his country could not undertake to disarm until the Chinese-Japanese dispute was settled. There was unanimous decision to extend the existing Armaments Truce.

IRAQ

LEAGUE OF NATIONS

As the result of a meeting of the Council of the League of Nations held on 19th May, a draft declaration was approved, in which is set out the guarantees required by the Council of the League of Nations on the cessation of the Mandate in Iraq. These guarantees cover:—

- (i) The effective protection of racial, linguistic and religious minorities;
- (ii) The safeguarding of the interests of foreigners in the judicial sphere;
- (iii) Freedom of conscience and the safeguarding of the activities of religious missions;

- (iv) Rights acquired and financial obligations contracted by the Mandatory Power before the termination of the Mandate ;
- (v) Respect for international conventions ;
- (vi) The concession to States members of the League under certain conditions of most-favoured-nation treatment, subject to reciprocity ; and
- (vii) The right of the members of the League represented on the Council to lay before the Permanent Court of International Justice any difference of opinion arising out of the interpretation or execution of the undertakings assumed by Iraq before the Council.

The Iraq Government is expected to affix its signature to this declaration and to be formally admitted to the League at the meeting of the Assembly in September.

OIL CONCESSION

Early in the year negotiations were undertaken between the British Oil Development Company and the Iraq Government for the exploitation of oil concessions on the West bank of the Tigris. The concessions on the East bank, it will be remembered, are held by the Iraq Petroleum Company, who are building the pipe line to Haifa and Tripoli. The negotiations with the new company have now been completed, and the contract was signed on 20th April. The general terms of the agreement include the following :—

- (i) The lease of the concession shall be for seventy-five years ;
- (ii) The rent shall be £100,000 for the first year, rising by £25,000 per annum to £200,000, which rent shall cease as soon as the transport of oil shall commence ;
- (iii) The royalty payable shall be four shillings per ton ; and
- (iv) The Iraq Government shall receive 20 per cent. of all oil produced, to be sold or disposed of as they may think fit ;
- (v) Though German, Italian and French capital is sunk in the company, as well as British, it is an essential part of the contract that the control of the company shall remain in British hands.

SURRENDER OF SHAIKH AHMED

According to a telegram from the High Commissioner of Iraq. Shaikh Ahmed of Barzan surrendered to the commander of the Turkish forces co-operating on the border North of Zaita on 22nd June, as the result of action by the Royal Air Force and the close advance of Iraqi troops.

The Shaikh states that he wishes to submit to the Iraqi Government, and the Turkish commander has been requested to hand over the Shaikh and his brothers, and followers to the Iraqi commander on the border. The Barzan operations may now be regarded as closed.

LIBERIA

THE QUESTION OF A MANDATE

By ROBERT B. PAUL.

THE Report issued by the International Commission under the chairmanship of the late Dr. Christy, which was appointed by the League of Nations to enquire into the charges of slave dealing made against certain members of the Government of Liberia, coupled with the reports of other League Commissions, makes it quite clear that the internal situation of that country has reached a critical stage.

Geographically Liberia is situated on the West Coast of Africa between the British Colony and Protectorate of Sierra Leone, which marches with its Western frontier, and the French Ivory Coast which adjoins the Eastern frontier of the country. Politically Liberia is, with the exception of Abyssinia, the only independent state in the whole of Africa. Its beginnings were humble indeed. In 1822, a number of philanthropists in America envisaged the great ideal of returning to West Africa some of the slaves freed from the plantations in the Southern States of America, these slaves having originally been brought from West Africa. Doubtless, in some instances, the freed slaves who were chosen to return to West Africa were children of the actual slaves who had been transported to America.

It is not of particular moment to enquire whether the apparent idealism of certain American philanthropists was not to a considerable extent dictated by a desire to ameliorate what to them was becoming a growing social problem in America. Be that as it may, the object of returning some of the freed slaves to West Africa was, it is declared, to enable them to work out their own salvation in their own country among people of their own colour and with whom there was doubtless reason to believe they had something in common. In 1822, the first shipload of freed slaves landed on the site of what is now Monrovia, the capital of Liberia, and they proceeded to consolidate their position. From the very beginning, there is no evidence whatever to support the opinion that the indigenous Africans whom the freed slaves met on landing were anxious to make contact. On the contrary, they were particularly hostile, and there can be little doubt that the small band of freed slaves had to engage in a severe struggle to save themselves from complete annihilation. This attitude on the part of the indigenous Africans towards people of their own colour is not only interesting but important, and it might indeed be said that it is the whole root and growth of the difficulties existing in Liberia to-day. The indigenous

people have for the most part never become reconciled to the descendants of those freed slaves who first set foot in Africa.

In course of years, the freed slaves declared their independence and called their country, Liberia, as epitomising their sense of liberty. To our credit, it might be observed that Great Britain was one of the first nations to recognise the country's independence. Fortunately for the newly-formed state, the scramble for Africa had not yet begun. England, France, Germany and Belgium had not yet come to regard the West Coast of Africa as being worth the expenditure of men, time and money. Had the scramble for Africa taken place thirty years before Liberian independence had been recognized, Liberia would not have existed to-day, for, quite apart from the continued hostility of the indigenous people in that country, pressure from outside countries would have imposed upon Liberia difficulties which she could not possibly have withstood. As it was, in the subsequent partitioning of West Africa which took place, Liberia was able to maintain her independent status, although her internal difficulties continued unabated. Her boundaries were, after much difficulty, settled with the British and French governments.

The outcome of this development is that to-day the country is inhabited by two classes of people, differing widely in outlook and temperament. These two classes are the descendants of the freed slaves who first went to Liberia (they now number some 10,000 people and are the real Liberians), and the indigenous people of the hinterland who, on somewhat imperfect calculations, are said to number about 2,000,000. The government of the Colony is almost entirely in the hands of the Liberians, and there is to-day no more confidence between them and the indigenous people of the country than there was fifty years ago: indeed, in many respects, the gap between them has widened with the passing of years.

The crisis in Liberia has been used as an example and an illustration to show the unfitness of the African to govern himself. Whether, in time to come, the African will reach political maturity is of no consequence so far as this review of the Liberian situation is concerned; and it should be emphasized that the difficulties in Liberia have little bearing on this question. It is not the capacity of the indigenous Africans to govern themselves which is at issue, but the capacity of the Liberians who, paradoxically enough, have assimilated more Western ideas than the indigenous Africans of the country, the majority of whom have not yet come under the influence of Western ideas and standards. Not until the capacity of the indigenous Africans to govern their own country has been tried will it be possible to pass judgment, and it is as well that this factor should be kept clearly in mind.

There is a second factor of equal importance which must be observed. Criticisms of the Liberian administration and the demands which have been made in many quarters since the publication of the Christy Report that Liberia should be placed under international control or, what would be more satisfactory still, mandated to a European power, must not be taken to infer any desire on the part of the white races of the world to depress the African people. It is the Liberians, and not the Africans, who are being criticised in Liberia, and it is as well to notice that the Liberians in Liberia should, in principle, stand in the same relationship to the indigenous Africans of the country as the British administrations stand in the Gambia, Sierra Leone, the Gold Coast and Nigeria; that is to say, it is the duty of the Liberian Government, as it is the duty of the administrations in the British West African Colonies referred to, to guide and lead the African native, the only difference being that whereas in British West Africa the ultimate aim is self-determination for the African people, in Liberia, it should be the aim to bring the indigenous Africans forward in such a way that the gap between Liberians and Africans will be bridged, and that they will be one and will govern together.

Of course, there are many Liberians who will point out that the gap which exists between them and indigenous Africans in Liberia exists only in the imagination of the white races, and instances will be given where indigenous Africans have occupied, and occupy, positions in the Liberian State. But in direct contravention to this principle, one has only to examine the petitions and appeals for help addressed by many of the indigenous African chiefs to the League of Nations to realize that the general attitude between the Liberians and these indigenous Africans is one of master and man, and not partners in one state. Indeed, the whole essence of the charges of slavery which have been investigated and proved during the past eighteen months has shown that the Liberians do not regard the indigenous Africans as partners but as instruments to be tortured, sold and taxed according to the whim and fancy of the members of the Frontier Force under the instructions of the Liberian officials.

It is to the Liberian Frontier Force that the task of maintaining peace and order in the country is entrusted. Soldiers of the Force are employed in collecting taxes or in punitive expeditions undertaken on the slightest pretext against some indigenous chief in the hinterland. The Commander of the Liberian Frontier Force is said to have come from America and that he was originally a missionary. The fact that for several months past the members of the Frontier Force has received no pay is sufficient to suggest that the men do not require any considerable encouragement to undertake tax-collecting expeditions.

The Liberian Constitution is based on that of the United States, with a president and a number of ministers presiding over departments. It is customary when writing of the Liberian Government to throw gibes at the expense of those ministers as, for instance, the Minister of Railways, when there are no railways in the country and the Admiralty Department when there is no navy. This attitude is unnecessary and does not assist in any way towards an elucidation of Liberia's unhappy predicament. Indeed, there is, in principle, every reason why Liberia should have endeavoured to model her constitution on the lines of some great power, and in such a way introduce the fundamentals of good government. That they have failed thus far is without doubt due to the fact that corruption is rife throughout the country. Some of the members of the Government were, as a result of the Christy Commission, shown to be deeply involved in slave dealing, and there can be little doubt that a proportion of the various loans which the different Liberian Governments have raised from time to time was utilised for private purposes, rather than for the good of the State. In this respect, however, it should, in fairness, be pointed out that not always has Liberia been fortunate in the loan conditions which were arranged, and it is doubtful whether, in some instances, the whole of the loans which some countries covenanted to make were actually delivered to Liberia.

There can be little doubt that the Liberian Government to-day is facing a crisis from which there does not at the present time appear any means of escape unless it is prepared to accept a large measure of international control. As is to be expected, they are anxious to have no such infringement of Liberia's sovereign rights, but it is inconceivable that either the League of Nations, or any country acting independently, would advance money to that Government without the most specific security. In any event, it will be necessary before any new loans can be made to them, to obtain what tantamounts to the consent of the American Government, for the loan which was made to Liberia a few years ago by the Finance Corporation, when the Firestone Company was granted large concessions for rubber growing, was made on condition that no other loans would be accepted by the Liberian Government for a period of years.

There is, however, no reason to suppose that any difficulty would be encountered in obtaining the necessary consent from America to borrow money elsewhere, for it has been made clear that America is anxious to be relieved of the difficulties which she has experienced.

The crisis in Liberia has been aggravated by the fact that even though a new President was installed following the revelations of the Christy Commission, no considerable improvement has taken place. Not only

Great Britain, but also America, has found it impossible to recognize the new President for evidence is continually coming forward that the indigenous Africans who gave evidence before the Christy Commission are being subjected to the cruellest ill-treatment.

There is little doubt that if the will of the indigenous people of Liberia could be consulted, there would be an overwhelming majority in favour of mandating the country for a period of years to Great Britain to be administered side by side with the adjoining British territory of Sierra Leone, in very much the same way as the Gold Coast Administration supervises that part of Togoland adjoining the Gold Coast, which is mandated to Britain, and the Nigerian Administration supervises the government of British Cameroons. The one definite objection to such an arrangement would be that France, occupying territories on the Eastern Frontier of Liberia would expect to be given mandatory rights over that part of the country which adjoins the Ivory Coast. In principle, a simple division of Liberia would, therefore, appear desirable, but a fundamental objection to its being made effective lies in the fact that the most pro-British of the indigenous Africans in Liberia occupy that part of the country which runs with the French boundary. It is probable, too, that, anxious as she is to be relieved of her obligations, America, whilst possibly agreeing to the granting of a mandate to a country which at present has no stake in West Africa, such as Holland, Denmark or Sweden, would not be agreeable to foregoing her rights in the granting of a mandate to Great Britain or France or both.

The attitude of the African people in other parts of West Africa, and especially in the neighbouring British Colony of Sierra Leone, towards the Liberian situation is of interest. At the outset of the investigations, there was a tendency among the more educated Africans to look upon the crisis there as another instance of an attempt at land-grabbing by the white people. The continued disclosures of corruption and malpractices in the country have, however, had the effect of sobering considerably these early conclusions, and they have given way to more considered judgments. It would no doubt be correct to say that, to-day, the African people in British West Africa are impressed by the fact that whatever criticisms they may have had, and have now, regarding British administration in their country, they are not subjected to conditions which are the unhappy lot of the indigenous Africans in Liberia.

That some form of international control will come to Liberia is undoubted. What form it will take it is not as yet possible to estimate because the League of Nations, whilst realizing that it is inevitable,

do not wish to make any move against an individual member of the League which will infringe their independence. We shall doubtless witness another "search for a formula," but it must be repeated that international control will be an indispensable accompaniment of any loan to Liberia which will be necessary to set the country on a line which will lead to development. The Liberian Government must make the choice. It is a question of cash with supervision or poverty with independence—and it is the knowledge that poverty will eventually lead to risings through the country that will make Liberia accept the inevitable.

EVENTS IN THE FAR EAST

SHANGHAI

SINCE the sudden withdrawal, on 3rd March, of the 19th Cantonese Route Army from the positions which it had held to the North of Shanghai no event of military importance has taken place in that quarter. The Japanese followed up the retreating Chinese without fighting, as already recorded in the May issue of the JOURNAL. There was an insignificant skirmish on 21st April; otherwise the attitude of both sides was perfectly quiet.

On 5th May the hostilities were closed by an agreement signed at Shanghai which consisted of the following five articles:—

- (i) Both sides will, as far as lies in their control, cease from every form of hostile act;
- (ii) The Chinese troops will remain in their present positions;¹
- (iii) The Japanese forces will withdraw, beginning within a week, to the International Settlement, but, owing to their numbers, are given four locations in Chinese territory in a line between Chapei and Woosung, as defined in an annex, Woosung village being excluded and the Japanese undertaking not to interfere with the operation of the Shanghai-Woosung Railway;
- (iv) A joint Commission of twelve, being one civilian and one military representative of each of the six Powers concerned, will determine all matters of procedure by a majority vote, and will watch the carrying out of the terms of the first three articles. It will also collaborate in arranging the transfer of responsibility from the evacuating Japanese forces to the incoming Chinese police.

¹ These positions were fixed in a schedule to the agreement.

- (v) The texts shall be in Chinese, Japanese and English, the last named being authoritative.

Soon after this, it became obvious that the Japanese Government was growing concerned about the trend of events in Manchuria, so that little surprise was caused when on 11th May Japanese troops began to evacuate the Shanghai district. The 14th Division was then rapidly transferred to Harbin in Manchuria, whilst the remaining two Divisions returned in more leisurely fashion to Japan. The evacuation was completed by the end of May.

The Japanese forces in Shanghai have now been reduced to 2,000 men taken from the fleet, with the addition of a few details. Almost the entire detachment has been withdrawn into the International Settlement.

The situation at Shanghai has now returned very much to what it was before the Japanese incursion into Chapei on 28th January. Two matters, however, need mention. The agreement which was signed on 5th May was nearly wrecked, firstly, by the explosion of a bomb, placed under the dais of the higher Japanese officials at the review held in Hongkew Park to celebrate the Japanese Emperor's birthday, on 29th April; secondly, by an assault by Chinese students on Mr. Kuo Tai-chi, the Chinese Foreign Minister, on 3rd May, which caused injuries necessitating his going to hospital.

Fortunately it was obvious, from the moment of the explosion, that the outrage at Hongkew Park was not the outcome of a Chinese plot; it was soon proved to be the handiwork of a Korean malcontent. After some heated words, wiser counsels prevailed, and the agreement thus came to be signed by both Chinese and Japanese plenipotentiaries in their beds.

The outstanding question that remains to be settled at Shanghai is the question of compensation for the destruction of neutral property at or near Shanghai as the result of the recent fighting. The damages are computed at a little short of £10,000,000 (gold parity).

MANCHURIA

In Manchuria the new Manchukuo government is now more or less established under Japanese tutelage. But the condition of the country is by no means settled, while the Japanese forces show no sign of decrease. Although official figures would make it appear that the Japanese are supporting the new Government with some 20,000 troops—by treaty they should have not more than 15,000 men occupied in railway protection duties—there is reason to believe that there are well over 40,000 Japanese troops engaged on this task.

Their distribution appears to be as follows :—

At Harbin	14th Division (from Shanghai), and one Brigade.
East of Harbin	10th Division.
At Mukden and Westwards ..	2nd Division.
East of Mukden	One Brigade.
At Chinchow and District ..	8th Division.

In addition, some detachments of the regular garrison of Korea are stationed on the Manchurian side of the Korean frontier. Lastly, there are at least six battalions of infantry permanently allocated to railway protection.

The Manchukuo government is engaged in raising an army of its own, strengthened by Japanese cadres, with a particularly strong injection of Japanese officers. These forces, which are designed to number 85,000 of all ranks, now total some 60,000 men. These have been formed from the late armies of the Manchurian War Lord, Chang Hsueh-liang. On the other hand, the remainder of his troops numbering, it is said, not less than 50,000 are still organized in independent or semi-independent bodies against the existing Manchukuo-Japanese forces. The Manchukuo government is also believed to be raising some 120,000 police, and local defence formations numbering over 50,000 men. In addition to the remnants of the Chinese armies, there are calculated to be some 40,000 brigands active in the railway zone.

Throughout April guerilla fighting was in progress along the Chinese Eastern Railway, which *inter alia*, led to reciprocal accusations between Japan and the Soviet Union. There was also an outbreak of similar activity in the South East of Manchuria which appears to have simmered down more quickly. In the North-West the Chinese General, Ma-Chan-shan first came to terms with the Japanese, but his troops resumed their opposition to them, so that fighting of a kind is still taking place in those parts. All these operations are of a minor nature, and could hardly be described as of real military importance. But they show that the condition of Manchuria is far from peaceful, and that the Japanese hold on the country is far from being secure.

The most serious aspect of the case, however, is the fact that tension between Japan and the Soviet Union is, if anything, growing more acute. The Soviet forces along the Russo-Manchurian frontier have been reinforced; they are now said to number some eight divisions and two cavalry brigades. There are no symptoms of any Japanese desire to precipitate hostilities with the Soviet; nor is Japan in an economic position to maintain such a campaign. But it is clear that the risk of some serious frontier episode, reinforced by intensive recrimination from

Moscow or Tokyo, developing into an armed conflict on a greater scale is not to be ignored.

THE LEAGUE OF NATIONS COMMISSION

The Commission of Enquiry, under the presidency of the Earl of Lytton, despatched by the League of Nations to Manchuria last autumn, reached the Far East earlier in the year. The Commission first visited both Peking and Tokyo, in addition to Shanghai, Mukden and other towns. Before the end of April the Commission was able to issue an interim report in which it gave the numbers of all the various opposing forces and their distribution in Manchuria, as it had been presented to them by the officials of the various parties concerned—chiefly by the Japanese. The figures are almost identical with those already given in these notes. But the Commission has not criticised either the figures or the facts that have been put before it. They have, however, commented on the lawless condition of Manchuria and the insecurity of life and property in certain of its districts. The Commission is still engaged in its task.

CORRESPONDENCE

THE STUDY OF WAR BY JUNIOR OFFICERS

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In his recent lecture on "The Study of War by Junior Officers," Major McNair recommends that the subaltern on first joining his regiment after being commissioned should not be bothered with study, as such :—"Generally speaking, for the first two or three years of his commissioned service, the young officer does not require an intensive theoretical education."

It is interesting to compare this statement with what actually occurs in the training of young R.E. officers ; for this is exactly what they do receive. Their training, at Cambridge University and at the School of Military Engineering, covers nearly three years of almost entirely theoretical instruction in engineering and tactics. The great disadvantage, and it is a serious matter, is the length of time that transpires before they gain real touch with the troops and bear regimental responsibility, other than occasional orderly duties.

My own observation is that it is in the early twenties that young men are most impressionable in forming their habits of life. Lieutenant A. C. Cottell, in the Discussion, indicated a line which might well be followed. On joining his regiment, the young officer finds, or should find, his life suddenly enlarged. He has the untold advantage of dealing at once with his own men. This is the time to seize in order to put before him, in a more interesting light, subjects which have formerly been intensely boring. The "bookworm" theory, I suggest, is pernicious and a fallacy. There is no reason whatever, given tactful supervision, why a young man should not combine hard playing with hard work. Then, on entering the Army, he at once gets the idea of using his brain.

It is admitted that it is difficult to get hold of officers. The calls on them for courses and duties are heavy. It is all the more important, therefore, that those who are directing studies should be able to use every precious moment in the most interesting and instructive way. Possibly this is where the R.U.S.I. might help. In the same way that lectures and discussions are held on present day military problems of tactics, organization, armament, imperial affairs and similar matters, could not discussions be arranged on phases of campaigns "set for study," and even of more general subjects ? The discussion should not deal so much directly with the subjects, as with the method of conducting discussions on them.

Chatham,

June, 1932.

C. DE L. GAUSSEN,

Major, R.E.

GENERAL SERVICE NOTES

FRANCE

ABANDONMENT OF MINISTRY OF DEFENCE.—In these Notes for last quarter it was recorded that M. Tardieu had created a Ministry of Defence whereby the Ministries of War, Marine and Air were all placed under one Minister. On the 10th May, M. Tardieu resigned his office as Prime Minister and in due course was succeeded by M. Heriot. The latter lost no time in abolishing the Ministry of Defence, a few months experience of which appears to have proved its impracticability.

The Ministries of War, Marine and Air have been re-established. At the same time a new High Commission has been created, and it will be the task of this Commission to co-ordinate the requirements of National Defence. In effect, it is equivalent to our Committee of Imperial Defence, but whereas the latter is presided over by the Prime Minister or his deputy, the President of the French High Commission is the Minister for Air. The Commission will study all questions relating to combined operations, the general organization of the three Services, the armaments programmes and the allotment of credits voted to the Air Force, the Army and Navy.

ITALY

NAVAL AND AIR MANOEUVRES.—It is announced that during August combined naval and air manoeuvres will take place. The forces engaged will include about a hundred surface ships of different types, thirty submarines and twenty-three squadrons of aeroplanes.

NAVY NOTES

GREAT BRITAIN

ROYAL UNITED SERVICE INSTITUTION

In a Fleet Order (No. 751 of the 1st April, 1932), the Admiralty call attention to the suspension of the entrance fee for membership of the Institution, and to the special facilities it affords officers for professional study.

The Order concludes "Their Lordships desire it to be known that they wish to give every encouragement to officers to join the Institution, compete for the essay prizes and take part in the debates after Lectures."

INSPECTION OF THE HOME FLEET BY H.M. THE KING.

For the first time since July, 1924, H.M. the King made an inspection of the Home Fleet in July and spent four days with His ships. The Fleet was assembled in Weymouth Bay under the command of Admiral Sir John Kelly. There were forty-six ships present. They included the battleships "Nelson," "Rodney," "Valiant," "Malaya" and "Warspite"; the battle-cruisers "Hood" and "Renown"; the cruisers "Dorsetshire," "Norfolk," "Exeter," "York" and "Centaur"; the aircraft-carriers "Courageous" and "Furious"; four flotilla leaders, twenty-two destroyers; five submarines; and the sloop "Snapdragon." The other Flag Officers present in command were Vice-Admiral W. Tomkinson (Battle Cruiser Squadron), Rear-Admiral E. A. Astley-Rushton (Second Cruiser Squadron), Rear-Admiral W. F. French (Second Battle Squadron), Rear-Admiral R. G. H. Henderson (Aircraft Carriers), and Commodore E. O. B. S. Osborne (Destroyer Flotillas).

Accompanied by the Prince of Wales and Prince George, the King embarked in the royal yacht "Victoria and Albert" at Portsmouth on 11th July and proceeded in her to Weymouth, arriving at 5.30 p.m. On the following morning, the King and the Princes went on board H.M.S. "Nelson," and were received with customary ceremonial. Contingents numbering 75 officers and 1,750 men, drawn mainly from the Battle Squadron, had been assembled in the "Nelson," and a march past was held. The King returned to the yacht at mid-day, and at 1 p.m. proceeded to the "Courageous," in which he spent over six hours at sea witnessing exercises by aircraft from that ship and the "Furious." Both the Prince of Wales and Prince George made flights from the deck of the "Courageous" and alighted in her again. The Prince of Wales transmitted from the machine in which he was flying a message from the King to the fleet, which ran "It gave me great pleasure to inspect the ships companies I saw on board the fleet flagship this morning. I am now enjoying watching the operations of the aircraft carriers." On the morning of the 13th, the King and the Princes visited H.M.S. "Hood," and saw a march past of 76 officers and 1,660 men drawn from the battle-cruisers, cruisers, destroyers and submarines. The royal visit culminated on the 14th July, when the fleet weighed anchor and proceeded to sea by signal from the "Victoria and

Albert," which headed one of the four columns of ships. After passing the Shambles lightship, the King ordered the fleet to proceed in execution of previous orders, and a programme of exercises took place. Submarines of the Second Flotilla dived close to the royal yacht. Destroyers carried out concentrated firing at a target towed by the "Snapdragon." Other destroyers made a torpedo attack on the big ships. A 15-in. concentration firing was carried out by the "Warspite," "Valiant" and "Malaya." The Second Cruiser Squadron fired anti-aircraft guns at a target towed by an aeroplane. Aircraft then made smoke screens three miles to leeward of the Royal yacht, after which the fleet formed up in two parallel lines and fired a royal salute, as the "Victoria and Albert" left for Portsmouth.

Dinner parties were given by His Majesty on board the yacht each evening, to which a number of officers of the Fleet had the honour of being invited. On 13th July, Admiral Sir John Kelly had the honour of being invited to luncheon with His Majesty on board the yacht, when the King invested him with the Insignia of a Knight Grand Cross of the Royal Victorian Order.

On leaving the Fleet, the King made the following signal to the Commander-in-Chief:—"At the conclusion of a most interesting and enjoyable visit to the Home Fleet, I wish to assure you of my entire satisfaction with all that I have seen. Since I last inspected the fleet considerable reductions have been made, but I am gratified to see that in efficiency and keenness the standard of the fleet under your command remains as high as ever. I congratulate all officers and men, and I look to them to maintain at all times the honoured traditions of the Service.—GEORGE, R.I."

VISIT OF H.R.H. THE PRINCE OF WALES TO THE MEDITERRANEAN FLEET.

His Royal Highness the Prince of Wales was due to visit the Mediterranean Fleet, under the command of Admiral Sir Ernle Chatfield, K.C.B., K.C.M.G., C.V.O., during the month of August. He was expected to join the Fleet at Corfu on the 13th August, and to sail with it to Malta three days later.

THE BOARD OF ADMIRALTY.

Admiral Sir A. Ernle M. Chatfield, K.C.B., K.C.M.G., C.V.O., now Commander-in-Chief in the Mediterranean, has been appointed to be a Lord Commissioner of the Admiralty and Chief of the Naval Staff, in succession to Admiral Sir Frederick L. Field, K.C.B., K.C.M.G., to date 28th February, 1933. Admiral Chatfield is to be appointed to the "President," additional, for duty inside the Admiralty, from 31st January, 1933.

Vice-Admiral A. D. P. R. Pound, C.B., whose selection to be a Lord Commissioner of the Admiralty and Chief of Naval Personnel, in succession to Admiral Sir Cyril Fuller, K.C.B., C.M.G., D.S.O., was announced in the last issue of the Journal will take up the duties of this post on 31st August.

Rear-Admiral Geoffrey Blake, C.B., D.S.O., whose selection to be a Lord Commissioner of the Admiralty and Chief of Supplies and Transport, in succession to Vice-Admiral L. G. Preston, C.B., was also announced in last quarter's Navy Notes, has been appointed to the "President" for service in the Admiralty from 23rd August, and will take up his new post on 20th September.

Rear-Admiral C. J. C. Little, C.B., now the Rear-Admiral (S), has been appointed to be a Lord Commissioner of the Admiralty and Deputy Chief of the Naval Staff, in succession to Vice-Admiral Sir Frederic Dreyer, K.C.B., C.B.E.,

to date 9th January, 1933. Vice-Admiral Dreyer has been appointed Commander-in-Chief in China.

FLAG APPOINTMENTS.

PRESIDENT, ROYAL NAVAL COLLEGE.—Vice-Admiral Barry E. Domville, C.B., C.M.G., has been appointed President, Royal Naval College, Greenwich, and Vice-Admiral Commanding, War College, in succession to Vice-Admiral Sir William H. D. Boyle, K.C.B., to date 1st August.

DIRECTOR OF NAVAL INTELLIGENCE.—Rear-Admiral Gerald C. Dickens, C.M.G., has been appointed Director of the Naval Intelligence Division of the Naval Staff, in succession to Rear-Admiral Cecil V. Osborne, C.B., C.M.G., to date 15th August.

CHIEF OF STAFF, MEDITERRANEAN.—Rear-Admiral A. E. F. Bedford has been appointed Chief of Staff, Mediterranean, to Admiral Sir William W. Fisher, K.C.B., C.V.O., in succession to Rear-Admiral S. R. Bailey, C.B.E., D.S.O., from the change of flag. Admiral Fisher will succeed Admiral Chatfield as Commander-in-Chief in October.

BATTLE CRUISER COMMAND.—The appointment of Rear-Admiral William M. James, C.B., as Rear-Admiral Commanding Battle Cruiser Squadron in succession to Vice-Admiral Wilfred Tomkinson, C.B., M.V.O., is to take effect on 15th August.

EAST INDIES COMMAND.—Rear-Admiral M. E. Dunbar-Nasmith, V.C., C.B., assumed command of the East Indies Station on 14th June, 1932, in succession to Vice-Admiral E. J. A. Fullerton, C.B., D.S.O., at Aden.

AMERICAN AND WEST INDIES.—Rear-Admiral the Hon. R. A. R. Plunkett-Erle-Drax, C.B., D.S.O., succeeded Vice-Admiral Sir Vernon Haggard, K.C.B., C.M.G., as Commander-in-Chief, America and West Indies Station, at Bermuda.

COMMODORE, HONG KONG.—Captain E. McC. W. Lawrie, D.S.O., has been appointed Commodore 2nd class in charge of the Naval Establishments at Hong Kong, in succession to Commodore A. H. Walker, O.B.E., from date of joining.

LEAGUE OF NATIONS.—Captain Roger M. Bellairs, C.B., C.M.G., has been appointed as British Naval Representative on the Permanent Advisory Commission of the League of Nations, in succession to Vice-Admiral A. D. P. R. Pound, dated 6th July.

HYDROGRAPHER OF THE NAVY.—Captain John A. Edgell, O.B.E., now Assistant Hydrographer, has been appointed Hydrographer of the Navy, in succession to Vice-Admiral Henry P. Douglas, C.B., C.M.G., to date 1st October.

PERSONNEL.

ENGINEER-IN-CHIEF.—Engineer Rear-Admiral H. A. Brown, C.B., has been appointed to succeed Engineer Vice-Admiral Sir Reginald W. Skelton, K.C.B., C.B.E., D.S.O., as Engineer-in-Chief of the Fleet, to date 1st December, 1932.

DURATION OF OFFICERS' APPOINTMENTS.—An Admiralty Fleet Order announces that the period of service in individual appointments will be at the discretion of the Admiralty, but as a general rule the appointments of officers below the rank of Captain will be approximately for the following periods:—

- (1) In sea going ships in the Home Fleet and abroad—for the period of the commission.
- (2) In other ships and establishments at home—two years.
- (3) In establishments abroad—two to two-and-a-half years.

The Order also states that an extension of one year may be considered in the case of certain specified Home appointments where it is necessary in the interests of the Service, or where personal hardship would be caused by relief at two years.

Engineer officers' appointments will normally be for the following periods:—

- (1) In sea going ships at home—two years.
- (2) In ships abroad—two-and-a-half years.
(in each case irrespective of the date of commissioning).
- (3) In establishments at home or abroad, for two or three years according to the nature of the appointment and the requirements of the Service.

Special terms of appointments are laid down for commanding and other officers of ships in Irish waters, the Red Sea and the Persian Gulf and for officers serving on shore at naval bases abroad.

Appointments for Warrant Officers will be for the same periods as those laid down above for Lieutenants, etc., except that appointments to the Admiralty will normally be for three years.

CADETS' TRAINING SHIP REVIVED.—In June, it was decided to revive the practice of giving Naval Cadets a term of sea service in a cruiser before they join the fleet. The desirability of this was mentioned by the First Lord when introducing the Navy Estimates. H.M.S. "Frobisher," flagship of the Reserve Fleet, was reduced to special complement on 20th June at Portsmouth, and the flag of the Vice-Admiral Commanding the Reserve Fleet transferred to H.M.S. "Vindictive." The "Frobisher" was ordered to be taken in hand for conversion at Portsmouth Dockyard. The intention is that she shall be fitted to accommodate 160 Cadets, and shall take two terms of Dartmouth Cadets immediately after the completion of their Dartmouth course, and all the Cadets now trained in the "Erebus" at Devonport. She should carry out three cruises a year, changing one term of Cadets every four months. As one of the main objects of the scheme is that the Cadets should themselves do much of the work of the ship, the ordinary complement is to be kept as low as possible, and will be obtained by paying off the two existing tenders to Dartmouth College (the "Forres" and the "Carstairs") and the "Erebus," and by changing the status of the "Erebus" to that of turret drillship with a minimum complement. The "Concord," signal school cruiser, is also to be paid off.

TRAINING UNDER SAIL.—In his speech on the Navy Estimates in March, the First Lord expressed himself in favour of giving seagoing training in sail to boy ratings after leaving the shore training establishment, and to Midshipmen. The requirements of such a scheme are now being worked out in detail. In Fleet Orders on 13th May, the Admiralty called for reports as to which executive officers, petty officers and men had already had experience in seagoing sailing ships or yachts. It was desired to ascertain whether such officers and men, in the event of a decision being reached to re-introduce training under sail, wished to volunteer to undergo a period of training in a sailing ship preparatory to being considered in due course for service in sailing training ships when they are introduced.

FUTURE OF DARTMOUTH.—In reply to a question, the First Lord stated in June that he was satisfied that reductions in the cost of Dartmouth were both necessary and possible in the matter of staff, as well as in other directions. He was particularly anxious to see removed, as soon as possible, this one real source of criticism, since he regarded the continuance of the College as a matter of the first importance. The question of postponing the age of entry for Cadets,

and using for any other purpose that part of the College not in use at the moment, was being considered.

FLEET MESSING ARRANGEMENTS.—On 3rd June, the Admiralty promulgated new regulations concerning the systems of messing the men of the fleet known as the "standard ration and messing allowance system" and the "general messing system." Their Lordships have decided to introduce "zone" and "group" rates, based on geographical and other considerations and on the numbers victualled in the ships or establishments. From 1st July, 1932, the general messing rates are regarded as definite and no "saving" on them will be expected or should be realised. Former instructions as to obtaining specified commodities from Government sources and from the N.A.A.F.I. remain in force. The change in system will not entail any reduction in the amount spent on the victualling of the fleet, but will tend to greater uniformity in the standard of messing on different stations. The zones are:—A, Home; B, Mediterranean; C, America and West Indies; D, Africa; E, East Indies; F, China; and G, New Zealand.

LOWER DECK PROMOTION.—The first qualifying examination for general service candidates for Acting Sub-Lieutenant under the new regulations quoted in these Notes for August, 1931, for the advancement of lower deck ratings, will be the higher educational test to be held in October, 1932. In this test, instead of having to obtain a first-class certificate as hitherto, they will be required to reach a reasonably high standard in the following papers, all of which must be taken at one sitting:—(1) practical mathematics, (2) mechanics, (3) magnetism and electricity, (4) navigation I, and (5) history. Candidates who qualify in this test will be considered also as qualified educationally for Warrant rank. The new scheme will be in full operation in 1933.

The first qualifying examination for the rank of Acting Sub-Lieutenant (E) will also be held in October. The subjects are:—(1) mathematics, (2) applied mechanics, (3) general science and electricity, (4) engineering I, (5) engineering II, (6) heat and steam, and (7) English.

RYDER MEMORIAL PRIZE.—The Ryder Memorial Prize for 1931 has been divided equally between Acting Sub-Lieutenants E. K. U. Clark, H.M.S. "Cygnet," and E. R. Manners, H.M.S. "Winchester," who obtained the same number of marks and shared the first place in the examination in French held at Greenwich in 1931.

MATERIAL.

THE 1929 PROGRAMME.—H.M.S. "Leander," the only cruiser authorized under this programme, is due to be completed about the end of February, 1933, when she is expected to relieve the "Norfolk" in the Second Cruiser Squadron, Home Fleet. The "Norfolk" has been allocated to the West Indies.

The destroyers of this programme have joined the Second Flotilla during the past quarter. This flotilla was withdrawn from the Mediterranean, and its administration transferred to the Home Fleet from 1st May.

The submarines "Thames," "Swordfish" and "Sturgeon" are to be completed between September and the end of January, 1933. It is not yet announced to which flotillas they will be allocated.

THE 1930 PROGRAMME.—The remaining destroyers of this programme have been launched during the past quarter. The leader "Duncan" was floated out of dock at Portsmouth on 7th July. The "Dainty" and "Delight" were

launched at Govan by the Fairfield Company on 3rd May and 2nd June respectively. The "Decoy" was put afloat by Messrs. Thornycroft at Woolston on 7th June. The "Diana" and "Duchess," which completed the group, were launched on 16th June and 19th July respectively by the Palmers' Company, Jarrow-on-Tyne.

Three out of the four sloops of this programme are now afloat. The "Falmouth" was launched at Devonport on 19th April. The "Milford" was also put afloat there on 11th June; and the "Weston-super-Mare" on 23rd July. The "Dundee" is expected to be launched about September.

THE 1931 PROGRAMME.—With regard to the building programme in the Navy Estimates of 1931, the First Lord announced on 29th June that only the gunboat and the small craft had so far been ordered. The remaining ships—three cruisers, one leader, eight destroyers, four sloops, and three submarines—would be ordered in the autumn of this year. The gunboat is to be called the "Sandpiper," and was ordered at the end of April from Messrs. Thornycroft and Co., Southampton.

THE 1932 PROGRAMME.—Since 7th March, when the projected allocation of the 1932 programme was announced by the First Lord, it has been necessary to review the programme of work at Portsmouth Dockyard. The "Dauntless" had been sent there to refit, and the "Frobisher" would be fitted out there for service as a Cadets' training ship, the money being found by deferring work on other refits. It was contemplated that the large repair of the battle cruiser "Repulse," due to be begun next year, should be done at Portsmouth. The combined effect of these arrangements was to place an additional amount of work on repairs and refits which would absorb all the labour it had been proposed to employ on building the new 1932 leader at Portsmouth. It has therefore been decided to transfer this leader from Portsmouth yard to contract construction.

PULVERISED COAL.—The First Lord announced on 8th June that the Admiralty do not contemplate the use of pulverised coal for the ships of the Navy owing to the disadvantages inseparable from the employment of coal as a fuel for warships, viz., reduced endurance for a given weight of fuel and increased weight and space required for a given power. Experiments as to the suitability of colloidal fuel for use in H.M. ships had been carried out, and the results had not been sufficiently promising to warrant their continuation, although the matter had not been lost sight of.

SALVAGE OF "M.2."—Work has continued at intervals during the past quarter in preparing the hull of "M.2" for raising by securely closing all the hatches and locating and sealing several minor leaks.

EXERCISES AND CRUISES.

HOME FLEET.—The summer cruise from May to July, inclusive, followed the lines of previous years. Exercise periods off the East coast of Scotland were followed by independent cruises during June. The customary visits to Scandinavian and Baltic ports were made this year by the battleships "Nelson," "Rodney," "Valiant" and "Malaya," and the Sixth Destroyer Flotilla.

MEDITERRANEAN.—The first summer cruise began on 23rd June, when the fleet left for Argostoli and Valona. On 4th July, it separated for independent visits to ports and places in Italy, Greece, and Czecho-slovakia, and was due to return to Malta on 17th August.

EAST INDIES.—Cruises to East African ports were made by the flagship "Effingham" and the "Enterprise," which left Dar-es-Salaam and Mombasa

respectively on 18th July for Colombo, calling at Seychelles. The Persian Gulf sloops continued their usual patrols.

CHINA.—The more tranquil situation in China enabled several ships to use the rest base at Wei-Hai-Wei, where the flagship "Kent" arrived on 18th June from the Yangtze. The "Caradoc" was withdrawn from Hankow for recommissioning at home, and the "Cumberland" proceeded there on 12th June.

AMERICA AND WEST INDIES.—The "Delhi," with the new Commander-in-Chief, left Bermuda on 2nd July for British Columbia, via the Panama Canal, and the other cruisers have carried out independent programmes. That arranged for the "Durban" had to be postponed on account of the insurrection in Chile, this cruiser being ordered to Callao as a precautionary measure, where she arrived on 18th June.

MISCELLANEOUS.

ALEXANDRIA ANNIVERSARY.—11th July was the fiftieth anniversary of the bombardment of Alexandria.¹ Twenty-six officers who took part attended a commemorative dinner at the United Service Club on the anniversary. Admiral the Hon. Sir Victor Stanley, who was then a Naval Cadet in the "Monarch," aged fifteen, presided at the dinner. The veteran of the gathering was Admiral A. B. Jenkins, who was Commander of the "Inflexible," and is now eighty-six. A message expressing their humble duty and loyalty was sent by the officers to the King, who replied expressing his appreciation and wishing the officers many more such happy reunions.

Among those who were unable to be present owing to ill-health or distance from London was Admiral Sir Reginald Henderson, who was Commander of the "Invincible." Sir Reginald died the following day, aged eighty-five. Paymaster Rear-Admiral Sir William Beresford Whyte, who was a clerk in the flagship "Alexandra," and attended the reunion dinner, was killed on 13th July in a motor car accident. The oldest officer living at the time of the anniversary was Engineer W. Scott, who was ninety-five years of age. He served as an engineer in the "Temeraire."

ROYAL MARINES.

TROOPING THE COLOUR.—Admiral of the Fleet Sir Roger Keyes, Bt., G.C.B., K.C.V.O., C.M.G., D.S.O., who was appointed Honorary Colonel Commandant of the Portsmouth Division, Royal Marines, on 31st March, visited Eastney on 21st June when the ceremony of Trooping the Colour was carried out. This was the first time that the new Colour, presented to the Division in 1931 by Prince George, had been trooped.

NEW TRAINING MANUAL.—A new publication entitled "The Royal Marine Training Manual" is being issued to all concerned. The "R.M.T.M." supersedes the portions of G.S.O., R.M., (1922) relating to training and the "Syllabus of Training, Royal Marines."

FOREIGN NAVIES

BRAZIL

NEW PROGRAMME.—A decree promulgated at Rio de Janeiro on 11th June, ordered the appropriation of £10,000,000, spread over twelve years, for the

¹ The figurehead of H.M.S. "Condor," commanded by Lord Charles Beresford at this action, is in the R.U.S. Museum.

renewal of the Brazilian Navy. At present the Navy includes two battleships of early "Dreadnought" type, completed in 1909-10; the coast defence ship "Floriano" (1901); ten Yarrow-built destroyers of 560 tons and 27 knots (1908-9); two other destroyers, and four Italian-built submarines, three of which were launched in 1913.

U.S. NAVAL MISSION.—On 25th June, an agreement was signed between the U.S. Secretary of State and the Ambassador from Brazil at Washington providing for a naval mission composed of two commissioned officers and one chief petty officer of the U.S. Navy to assist in the work of instruction at the Brazilian Naval War College.

DENMARK

NEW CONSTRUCTION.—The three new torpedo boats "Gelenten," "Hogen" and "Ornen" have been laid down. They are small craft of 285 tons displacement, with engines of 6,000 h.p., and a designed full speed of 27.5 knots. The armament consists of two 75 mm. guns, two 20 mm. guns, two 8 mm. machine guns and eight torpedo tubes.

The new Royal Yacht "Danneborg" and the light inspection vessel "Absalon" are nearing completion.

OBsolete VESSELS.—The coast defence ship "Herluf Trolle," the torpedo boats "Ornen," "Delfinen," "Svaerdfisken," and the submarines "Havfruen" and "Nymfen" are being removed from the effective list.

FRANCE

NEW MINISTER OF MARINE.—In the Cabinet formed by M. Herriot on 3rd June the portfolio of Minister of Marine was allotted to M. Georges Leygues. He had previously served for five years in this office, and had done more than any other Minister of Marine in modern times to promote the efficiency of the fleet.

MEDITERRANEAN EXERCISES.—During the Spring and early Summer of the current year a concentration took place, for the first time since 1913, of the French naval forces in seagoing commission in the Channel with those in the Mediterranean. Four destroyers, four torpedo boats and four submarines of the Second Squadron, based on Brest, visited ports in Morocco and joined up with the First Squadron for combined manoeuvres at Bizerta from 14th to 19th June, afterwards returning to Brest.

NEW BATTLE CRUISER.—With reference to the projected battle cruiser, some details of which were given in these notes for last quarter, the decision to build this ship has been ratified by Parliament, and the Arsenal at Brest is making preparations to lay the keel next October.

LAUNCH OF THE "ALGÉRIE."—The cruiser "Algérie" was launched at Brest on 21st May. The "Algérie" is the seventh and last of the French 10,000-ton cruisers with 8-in guns, and is being followed by a class of 7,600-ton ships mounting 6-in. guns. She will have engines of 84,000 S.H.P. as compared with the 90,000 S.H.P. of earlier cruisers, and a speed of 31 instead of 32 knots. The anti-aircraft armament has been increased from the eight 3.5-in. guns in the "Dupleix" to twelve 3.9-in. guns. Greater protection is afforded against above-water and under

water attack. With one funnel and one mast, the "Algérie" will present a great contrast to the earlier two-funnelled and two-masted ships of her class. She will carry a complement of 34 officers and 712 men.

NEW RIVER GUNBOATS.—Two river gunboats have been laid down in the Saigon Arsenal; they are intended for service at Tonkin. Each vessel displaces 107 tons, and will be propelled by two Diesel engines of 150 h.p., giving a speed of 10 knots. They will have a radius of action of 560 miles at that speed. The armament will consist of one 75 mm. gun at the bows and one 37 mm. gun in the stern, two Stokes' mortars and two machine guns. The engine room and magazine will be protected by steel plates. The gunboats are fitted with a searchlight and will have a complement of one officer, three warrant officers and twelve petty officers and men.

SUBMARINE LOSS.—On 7th July, the new submarine "Prométhée" sank about eight miles off Cap Levi, on the Normandy coast, and about ten miles North-East of Cherbourg, during surface trials, with a loss of 62 officers and men, including engineers and dockyard workmen. Attempts to establish communication were unsuccessful and the victims were probably swiftly drowned when the vessel foundered. The assistance of the Italian salvage ship "Artiglio," which had worked with success on the wreck of the "Egypt" was obtained, and her divers made every effort to discover some sign of life in the vessel, but without success. On 13th July an announcement was made by the Ministry of Marine to the effect that an "error of manipulation" at the moment of switching over from the electric to the Diesel engines caused the submarine to sink. The committee of inquiry, after experiments with the sister ship "Archimède," came unanimously to the opinion that a compressed air valve was suddenly opened in error, thus letting in the water and causing the vessel to dive.

GERMANY

A THIRD BATTLESHIP.—The Naval and Military Estimates for 1932-33, published on 17th May, included a first instalment for the building of the third 10,000-ton armoured ship, provisionally called the "Panzerschiff C," or "Ersatz-Braunschweig." The Government reserved its decision about the date of laying down and any eventual deviations from the type necessitated by the results of the Disarmament Conference. It is contemplated that the ship will be built at the Reich naval dockyard at Wilhelmshaven. The Estimates include the final grant for the first post-war armoured ship, the "Deutschland," which will cost 40 million marks without armament and 75 million marks with armament (about £2,000,000 and £3,750,000 gold respectively). A further instalment is voted for the second ship, the "Ersatz-Lothringen." It is contemplated that the fourth ship of the group, the "Ersatz-Elsass," will be laid down in 1933.

LOSS OF A TRAINING SHIP.—The naval training ship "Niobe" capsized under sail off Fehmarn in the Baltic on 26th July, and sixty-nine officers, petty officers and naval cadets and ratings were drowned. The forty survivors were picked up by the Hamburg ship "Therese Russ," a lifeboat from the Fehmarn lightship, and a naval patrol boat. The "Niobe" was barque rigged and had been taken over by the navy in 1922 as a training ship for naval cadets. The disaster means that the greater part of a year's recruits for the commissioned ranks of the German navy have been lost.

ITALY

CRUISER LAUNCH.—The cruiser "Armando Diaz" was launched by the Odero-Terni Company at Spezia on 10th July. This is the sixth of the eight vessels of the "Condottieri" type, of 5,069 tons, 37 knots' speed, and armed with eight 6-in. guns, six 3.9-in. A.A. guns, six smaller guns, and four torpedo tubes. Each vessel has one catapult and two seaplanes. In the remaining two ships of this group, the "Montecuccoli" and "Muzio Attendolo," laid down in 1931 by the Ansaldo Company at Genoa, the displacement has been increased to 5,857 tons, and the horse-power from 95,000 to 110,000, although the designed speed remains at 37 knots.

JAPAN

VISIT TO NEW ZEALAND.—Vice-Admiral Imamura and officers of the Japanese training cruiser squadron while in New Zealand waters were entertained by the Dominion Government on 1st June at Wellington. Mr. Forbes, the Prime Minister, recalled that the previous Japanese visit in 1928 coincided with the conclusion of the New Zealand-Japanese Trade Agreement. The treaty, which was still the only New Zealand treaty in force outside the Empire, had resulted, said Mr. Forbes, in increased sales of New Zealand wool and purchases of Japanese silks. He hoped for an increase of such mutually beneficial trade. Admiral Imamura expressed the cordial hope for the continued friendship of the two great island countries.

NETHERLANDS

The Minister of Defence has decided that during the building period of the new cruiser no new material for the joint account of the Netherlands and Netherlands East Indies shall be laid down. This means that six replacement submarines, one mine-laying submarine and two destroyers which were to have been laid down before 1936 are now postponed for at least four years. It will be noted that this decision does not necessarily affect construction to be undertaken at the exclusive cost of the Home Government.

PERU

MUTINY AT CALLAO.—A mutiny, believed to form part of a Communist agitation throughout South America, occurred on board the cruisers "Coronel Bolognesi" and "Almirante Grau" off Callao on 7th May. The affair might have been more serious but for the patriotism of a sailor from the "Almirante Grau" who swam ashore and gave the alarm. He was afterwards received by the President and promoted, and the citizens of Callao presented him with a newly-built house. The entire Lima garrison was rushed down to Callao to prevent the mutineers from landing. A loyal submarine opened fire on the "Coronel Bolognesi," where the mutiny started, and when one of her shells struck the cruiser the mutineers hauled down the red flags and hoisted white ones.

A court-martial assembled at Lima on 9th May, and as a result of its verdict eight ringleaders were executed on 11th May; fourteen sailors were sentenced to fifteen years imprisonment and twelve to ten years. The court-martial recommended the trial of the leaders of the Apra Party on the charge of having incited to rebellion. This party is permeated with Communist agitators who maintain contact with Soviet headquarters in Montevideo.

POLAND

USE OF DANZIG PORT.—On 1st May, the right previously enjoyed by the Polish fleet to use the free port of Danzig was rescinded, following the construction by Poland of her own harbour at Gdynia. The new regulation caused a certain amount of friction between the Danzig and Polish Governments. On 15th June, it was reported that during a visit of British destroyers of the Sixth Flotilla of the Home Fleet, a sensation was caused by the arrival unexpectedly of the Polish destroyer "Wicher," one of the two 1,500-ton vessels of 33 knots completed in France in 1930.

SPAIN

NEW CONSTRUCTION.—The 10,000 ton cruiser "Balears" was launched at Ferrol on the 21st April. She will be armed with eight 8-in., six 4.7-in. and four 4.7-in. A.A. guns, and twelve 21-in. torpedo tubes. Her designed full speed is 33 knots. A sister ship, the "Canarias" is nearly completed.

TRAINING SHIP CRUISE.—In the course of a cruise, the training ship "Juan Sebastian Elcano" arrived at New York on 27th April with forty-eight Midshipmen on board. A party of twenty-eight Midshipmen visited Annapolis on 5th May and were the guests of American Midshipmen at the Naval Academy. The vessel is a sailing ship equipped with auxiliary Diesel engines.

LIGHT CRUISER SUNK.—On 11th July, the light cruiser "Blas de Lezo" struck a reef near Cape Finisterre, and sank in 33 fathoms while being towed in the hope of beaching. Her crew of 346 was saved by other ships taking part in exercises at the time of the mishap. The "Blas de Lezo" was of 4,650 tons, and was launched at Ferrol in 1923. She carried six 6-in. guns, and belonged to the Second Cruiser Division.

SWEDEN

NEW CONSTRUCTION DELAYED.—The building programme has been slowed down and the completion of the two mine-laying submarines which were due in 1933 will almost certainly be delayed. The hangar cruiser "Gotland" which was due for completion in 1934 will also in all probability be delayed owing to reductions in the grants for ship building. The reconstruction of the coast defence ship "Sverige" was due for completion last October but work is behindhand. The "Drottning Viktoria" will be taken in hand for reconstruction on the completion of the "Sverige."

UNITED STATES

NAVAL APPROPRIATION BILL.—The Naval Appropriation Bill for 1932-33 was approved at the end of June. It carried a total expenditure of 317,583,591 dollars, which was 40,678,532 less than the appropriations for the past fiscal year, and 24,093,859 less than the budget estimates.

LAUNCH OF THE "PORTLAND."—The cruiser "Portland" was launched on 21st May at Quincy, Mass., in a forward state, and is expected to be ready to join the fleet by the end of the year. The launch was postponed from the date originally fixed and given in the last issue of the JOURNAL. Including the "Portland," there are now ten U.S. cruisers of post-Washington type of 10,000 tons,

armed with 8-in. guns, in the water, and five more are building. This makes up the quota agreed to in this class under the London Treaty.

SCOUTING FORCE IN PACIFIC.—It was announced by Admiral W. V. Pratt, Chief of Naval Operations, on 20th May that the stay of the Scouting Force on the West Coast had been extended to include the first quarter of the fiscal year, viz., to 1st October, 1932. In making this decision, questions of fleet operating efficiency were taken into account, such as economy in steaming, fleet training, and gunnery, and the fact that the co-operation of the Scouting and Battle Forces gives an opportunity for increased scope in the tactical training of the various types which comprise the United States fleet. In the original schedule approved last autumn, the concentration of the U.S. fleet in the San Diego-San Pedro area was to have ended on 13th May, 1932.

YANGTZE SERVICE MEDAL.—The U.S. Mint at Philadelphia has begun work on the production of the Yangtze Service medals, authorized by General Order No. 205 for issue to all officers and enlisted men of the U.S. Navy and Marine Corps who served on shore in Shanghai, China, from 3rd September, 1926, to a date to be determined later, and to those who were attached to and serving on board the vessels mentioned therein.

ARMY NOTES

HOME

ROYAL UNITED SERVICE INSTITUTION.

A letter has been addressed by the War Office to all Commands at Home and Abroad circularising the notice of the suspension of the entrance fee for membership of the Institution, and enumerating the facilities afforded to officers for professional study. General Officers Commanding have been asked to bring this to the notice of Regular and Territorial Army Officers in their commands.

APPOINTMENTS AND PROMOTIONS.

H.M. the King has approved of the following appointments:—Colonel (temporary Brigadier) A. A. Goschen, D.S.O., as Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) H. R. W. M. Smith, C.B.E., D.S.O., promoted Major-General; Colonel (temporary Brigadier) V. M. C. Napier, C.M.G., D.S.O., as Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) C. C. Armitage, C.M.G., D.S.O., promoted Major-General; Colonel R. H. R. Benson, C.B.E., as Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) A. W. Bartholomew, C.M.G., C.B.E., D.S.O., promoted Major-General; Colonel (temporary Brigadier) D. E. Robertson, C.B., D.S.O., Indian Army, as Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) W. M. Fordham, C.B., C.B.E., Indian Army, who has retired.

Colonel (temporary Brigadier) W. P. H. Hill, C.M.G., D.S.O., as Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) Sir Hereward Wake, Bart., C.M.G., D.S.O., promoted Major-General.

Major-General P. H. Henderson, D.S.O., M.B., late R.A.M.C., as Honorary Physician to the King, in succession to Colonel W. R. P. Goodwin, D.S.O., late R.A.M.C., who has retired; Lieutenant-Colonel C. A. Gill, Indian Medical Service, as Honorary Surgeon to the King (and promoted to the rank of Brevet Colonel), in succession to Brevet Colonel F. P. Mackie, O.B.E., Indian Medical Service, who has retired.

Lieutenant-General Sir Charles T. MacM. Kavanagh, K.C.B., K.C.M.G., C.V.O., D.S.O., as Governor of the Military Knights of Windsor, in succession to the late Major-General Carteret Carey, M.V.O.

Colonel (Honorary Brigadier-General) R. M. Heath, C.M.G., D.S.O., retired pay, as Colonel of The Middlesex Regiment (Duke of Cambridge's Own), in succession to General Sir F. Ivor Maxse, K.C.B., C.V.O., D.S.O., retired pay; Colonel (Honorary Brigadier-General) W. K. Evans, C.M.G., D.S.O., retired pay, as Colonel of The Manchester Regiment, in succession to General the Hon. Sir Herbert A. Lawrence, G.C.B., D.C.L., LL.D., retired pay; Colonel (Honorary Brigadier-General) M. N. Turner, C.B., C.M.G., C.B.E., retired pay, as Colonel of The Duke of Cornwall's Light Infantry, in succession to Lieutenant-General Sir Harold B. Walker, K.C.B., K.C.M.G., D.S.O., retired pay; Lieutenant-General

Sir T. H. John C. Goodwin, K.C.B., K.C.M.G., D.S.O., F.R.C.S., retired pay, Colonel Commandant, The Army Dental Corps, as Colonel Commandant, Royal Army Medical Corps, in succession to Major-General Sir Maurice P. C. Holt, K.C.B., K.C.M.G., D.S.O., retired pay; Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S., retired pay, as Colonel Commandant, Royal Army Veterinary Corps, in succession to Major-General Sir Layton J. Blenkinsop, K.C.B., D.S.O., retired pay.

The following appointments have been announced:—Major-General O. C. Borrett, C.B., C.M.G., C.B.E., D.S.O., to be General Officer Commanding, The British Troops in China, with effect from 5th January, 1933, in succession to Major-General J. W. Sandilands, C.B., C.M.G., D.S.O., whose tenure of the appointment expires on that date; Major-General W. W. Pitt-Taylor, C.B., C.M.G., D.S.O., to be Commander, 3rd Division, with effect from November next, in succession to Major-General H. H. S. Knox, C.B., D.S.O.; Major-General B. D. Fisher, C.B., C.M.G., D.S.O., to be Director of Recruiting and Organization, The War Office, with effect from November next, in succession to Major-General Pitt-Taylor; Major-General M. G. Taylor, C.B., C.M.G., D.S.O., to be Commander, 46th (North Midland) Division, Territorial Army, in succession to Major-General O. C. Borrett, C.B., C.M.G., C.B.E., D.S.O., appointed General Officer Commanding The British Forces in China, to take up the appointment about November next; Major-General A. E. McNamara, C.B., C.M.G., D.S.O., to be Commander, 42nd (East Lancashire) Division, Territorial Army, with effect from 1st January, 1933, in succession to Major-General W. H. Beach, C.B., C.M.G., D.S.O., whose tenure of the appointment expires on that date; Major-General J. Kennedy, C.B., C.M.G., D.S.O., to be Commander, 44th (Home Counties) Division, with effect from 7th January next, on which date Major-General H. R. Peck, C.B., C.M.G., D.S.O., will complete his tenure of the appointment.

Colonel R. H. R. Benson, C.B.E., to be appointed Commandant of the Military College of Science, with effect from 12th December next.

The following promotions have been made:—Colonel H. R. W. M. Smith, C.B.E., D.S.O.; Colonel Sir Hereward Wake, Bart., C.M.G., D.S.O.; H.R.H. The Duke of York, K.G., K.T., G.C.M.G., G.C.V.O., Personal A.D.C. to the King; Colonel C. C. Armitage, C.M.G., D.S.O.; Colonel A. W. Bartholomew, C.M.G., C.B.E., D.S.O.; Colonel J. W. West, C.M.G., M.B. (late R.A.M.C.), K.H.S.; Colonel R. B. Ainsworth, D.S.O., O.B.E. (late R.A.M.C.), K.H.P., to be Major-Generals.

RE-ORGANIZATION AND MOVEMENTS.

RE-ORGANIZATION OF GARRISONS OF DEFENDED PORTS AT HOME.—A scheme for the re-organization of the coast defence arrangements at home has been approved under which the general responsibility for the land coastal defence of Great Britain will be undertaken by the Territorial Army.

30TH, 31ST, 32ND AND 33RD HEAVY BATTERIES, ROYAL ARTILLERY.—ABSORPTION.—The absorption of the 30th, 31st, 32nd and 33rd Heavy Batteries, Royal Artillery, into the 29th, 24th, 8th, and 1st Heavy Batteries, Royal Artillery, respectively, has been ordered and taken place.

HOUSEHOLD CAVALRY: MOVE TO HYDE PARK BARRACKS.—The Regiment of Household Cavalry stationed in London will be accommodated, in future, in Hyde Park Barracks, instead of Regent's Park Barracks. The present occupants

of Hyde Park Barracks will be transferred to Regent's Park Barracks, probably in the early autumn when the necessary alterations to the buildings will have been completed.

TEST OF MECHANICAL VEHICLES.

One of the periodic tests of mechanical vehicles held in North Wales was concluded on 23rd May in the vicinity of Bala, Festiniog and Llangollen.

The vehicles under test were the following:—(1) Light tank, Mark II (standard Service type); (2) Light tank, Mark II (with experimental engine); (3) Machine gun carrier (standard Service type); (4) Machine gun carrier (experimental), with Ford Model A engine; (5) Crossley three-man armoured car; (6) Karrier 3-ton six-wheeler (with winding gear); (7) Albion 3-ton six-wheeler; (8) Thornycroft 3-ton six-wheeler; (9) A.E.C. 3-ton six-wheeler; (10) Hardy 3-ton four-wheel drive lorry; (11) Commer 30 cwt. four-wheel lorry; (12) Leyland "Bull Terrier" 6-ton six-wheeler; (13) Leyland "Hippo" 12-ton six-wheeler; (14) Austin 7 h.p. two-seater car; (15) Austin 10 h.p. car.

These were all either new types or older vehicles embodying important modifications which it was desired to test. The only exceptions were Nos. 1, 3 and 14, which were standard Service types included in the trial for purposes of comparison. Each of the vehicles carried its full Service load and had been driven from Aldershot completing the 220 miles journey in a day. During the run details, such as petrol and oil consumption and average speed, had been recorded. There followed several days' running over mountain passes, including Bwlch-y-groes between Bala and Dinas Mawddwy, also the Crimea pass between Festiniog and Bettws-y-Coed. Bwlch-y-groes northern slope consists of a climb of four miles with an average gradient of 1 in 14, and the southern slope is 1.6 miles long with an average gradient of 1 in 7.2 (1 in 3½ at the steepest part). The climb of the southern slope with a following wind proved a very searching test for cooling systems.

On the morning of the 23rd there took place a climb of Alltybady, a hill 1,800 yards long with an average gradient of 1 in 6.75 and a maximum gradient (over a considerable stretch) of 1 in 3; this road is labelled by the A.A. & M.U. as "impracticable for motor vehicles." It is extremely narrow and has a right angled bend at the commencement which prevents drivers from getting a running start. All the vehicles, with the exception of the 6 and 12 ton lorries, attempted the climb, and remarkable performances were put up. First came the little machine gun carriers. The leader, the standard machine with Ford model T engine, showed signs of overheating but it completed the climb. The experimental machine was undoubtedly superior, and it was evident, both with this machine and the two light tanks which followed, that the incorporation of the Wilson "self-changing" gearbox greatly facilitated the handling of a vehicle under such conditions. After the light tanks had reached the summit, the little two-seater cars made gallant attempts, but had to be assisted to surmount the steepest point by manhandling by willing helpers. The armoured car and heavy transport vehicles then drove slowly but surely to the crest of the hill. During the test data as to the time of the climb; temperature rise of cooling water; amount of water lost, if any; and gears used, were obtained to enable the authorities to judge whether the performances were up to specification.

After the morning's test, the vehicles under trial were made to attempt the ascent and descent of the old road over the Horse Shoe Pass on the Llangollen-

Ruthin road. This hill is 1,700 yards long with an average gradient of 1 in 7.3 and a maximum gradient of 1 in 5.5. Similar data were obtained on the climb, and in addition vehicles were stopped on the steepest point in order to test the ease with which they could restart. On the descent braking tests were carried out. All vehicles successfully passed through this stage of the programme. At the end of the day's trials the 12-ton six-wheeler climbed and descended the New Horse Shoe Pass with absolute ease and success.

MEDICAL SERVICES OF THE ARMY.

An important step in the re-organization of the Medical Services of the Army is announced which should have far reaching effects in consolidating and extending the teaching, research work and the professional opportunities of officers of the Royal Army Medical Corps throughout the Army and in enhancing the status of the Royal Army Medical College and the professional side of the Corps.

In the period immediately succeeding the Great War a great advance was made in co-ordinating the professional activities of the Royal Army Medical Corps by the creation of the Directorates of Hygiene and Pathology, with their Advisory Committees composed of eminent members of the civilian medical profession, and the appointment of a Consulting Physician and a Consulting Surgeon to the Army from among the serving officers of the Corps. Owing to the large size of the Army at that time, these directorates and appointments were located at the War Office as part of the staff of the Director-General, Army Medical Services.

Now that the size of the Army has been reduced and more largely concentrated in the principal military stations, the organization of the medical directorate has permitted of some decentralization and the opportunity has been taken to concentrate at the Royal Army Medical College the heads of all the specialist branches of medicine and surgery.

The revision of departments involved has been secured by transferring the Director of Pathology, the Consulting Physician to the Army, and the Consulting Surgeon to the Army, from the War Office to the Royal Army Medical College and absorbing the appointments of Professors of Pathology, Tropical Medicine, and Military Surgery respectively. Each of these officers will as at present have an assistant professor under him, and in the case of medicine and surgery these officers will form the visiting medical and surgical staff of the Queen Alexandra Military Hospital, Millbank. The Director of Pathology will still control the pathological work in Commands as well as carry on his professorial work. The teaching staff of the College will now become the consultants and advisers of the Director-General, Army Medical Services, at the War Office and will be available for consultation in Commands when required.

The composition and location of the Directorate of Hygiene has not been changed.

It has also been decided that the consultant and professor in each case, though normally of Colonels' rank, may be promoted to Major-General should he come up for promotion in the ordinary course while holding the appointment. The appointment of Commandant and Director of Studies at the College will in future carry with it the rank of Major-General, but on the other hand the Deputy-Director, Army Medical Services, at the War Office will, when the next appointment is made, be a Colonel instead of a Major-General. Thus of the possible eleven Major-General's appointments open to Royal Army Medical Corps Officers, five are now of a professional nature and six administrative.

The re-organization constitutes a definite step and marks the great advance in the professional work of the Royal Army Medical Corps which has been evident since the war. It should do much to remove the erroneous impression that adequate professional work is unobtainable in the Army. In consequence also of the elaboration of motor transport in recent years many of the smaller hospitals in commands have been closed and the patients concentrated in central hospitals fully equipped with all the special departments made necessary by modern methods of diagnosis and treatment. This has resulted in specialization in all branches of medical, surgical and pathological work being now the rule rather than the exception.

The Secretary of State for War has also approved the recommendation made recently by the Army Medical Advisory Board, that, in order to maintain uniformity in the teaching and examination of Royal Army Medical Corps officers with that in civil life, a civilian inspector of the teaching and civilian examiners should be appointed by the Director-General, Army Medical Services, after consultation with the Presidents of the Royal College of Physicians and the Royal College of Surgeons.

TERRITORIAL ARMY

THE INNS OF COURT REGIMENT.—H.M. the King has approved of the title of the Inns of Court Officers Training Corps being changed to Inns of Court Regiment.

DOMINION FORCES

REGIMENTAL ALLIANCE.—H.M. the King has approved that the alliance between the 37th Battalion, Australian Infantry, Australian Military Forces and The Queen's Own Cameron Highlanders, may be extended to include the 37th/52nd Battalion, Australian Infantry, Australian Military Forces.

INDIAN ARMY

APPOINTMENTS.—The following appointments have been announced:—Major-General W. E. Wilson-Johnston, C.B., C.I.E., C.B.E., D.S.O., I.A., to be Colonel of the 4th/11th Sikh Regiment; Colonel (Honorary Brigadier-General) H. De C. O'Grady, C.I.E., I.A. (retired), to be Colonel of the 6th/13th Frontier Force Rifles, in succession to Colonel (Honorary Brigadier-General) R. A. Carruthers, C.B., C.M.G., I.A. (retired), who vacates the appointment on reaching the age limit.

Major-General G. H. Addison, C.M.G., D.S.O., from Chief Engineer, Aldershot, to be Engineer-in-Chief, India; Major-General Denis Deane, C.B., D.S.O., Indian Army, from Military Secretary and Secretary to the Selection Board, Headquarters of the Army in India, to be General Officer Commanding the Burma Independent District.

THE KING'S MEDAL.—The clasp "1931" for the champion shot of the Military Forces in India has been won by Havildar Barna Sing Thapa, 2/2nd K.E.O. Gurkha Rifles. The medal was won by this N.C.O. in 1928 and the clasp in 1929.

INDIAN MILITARY ACADEMY.—According to the *Pioneer Mail* the list of applications for the Indian Military Academy competitive entrance examination closed on 7th April. Of the twelve hundred or more original applicants, 361 had definitely offered themselves as candidates up to noon on 6th April. The latter are divided amongst provinces, communities, etc., as follows:—Punjab: Moslems, 58,

Hindus 69, Sikhs 52, Parsis 1, Indian Christians 1, Miscellaneous 2. Total 183. United Provinces: Moslems 10, Hindus 5, Sikhs 3, Indian Christians 2, Anglo-Indians 3, Miscellaneous 2. Total 44. North-West Frontier Province: Moslems 12, Hindus 7, Sikhs 3. Total 22. Bombay: Hindus 19, Parsis 4. Total 23. Delhi: Moslems 1, Hindus 8, Sikhs 4, Anglo-Indians 1, Domiciled Europeans 1. Total 15. Central Provinces: Hindus 6, Anglo-Indian 1. Total 7. Bihar and Orissa: Hindus 3, Sikhs 1. Total 4. Punjab States: Hindus 2, Sikhs 6. Total 8. Burma: Moslems 1, Hindus 2, Sikhs 1, Anglo-Indians 1. Total 5. Bengal: Moslems 1, Hindus 6. Total 7. Madras: Moslems 1, Hindus 5, Indian Christians 1, Anglo-Indians 1. Total 8. Prince of Wales's College, Dehra Dun: Moslems 5, Hindus 2, Sikhs 4. Total 11. Miscellaneous, including States: Moslems 3, Hindus 16, Sikhs 2, Anglo-Indians 3, Domiciled Europeans 1. Total 24. Following are the totals by communities: Moslems 92, Hindus 170, Sikhs 76, Parsis 5, Indian Christians 4, Anglo-Indians 9, Domiciled Europeans 2. The Punjab thus maintains its magnificent traditions by supplying over 50 per cent. of all the candidates and, though the Moslems' share is in excess of the proportion to India's total population, the honours easily go to the Sikhs who supply one-fifth of all the candidates, although their community comprises only about $1\frac{1}{4}$ per cent. of the country's total population.

FOREIGN

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FRANCE

YOUNG OFFICERS.—During the year ending 1st November, 1931, 1,582 2nd Lieutenants were commissioned from the following sources:—

	Per cent.
Polytechnique	100
St. Cyr	378
Medical officers	209
Veterinary officers (from Saumur)	9
Non-commissioned officers schools	472
Certain civil schools (Mines, Central, &c.)	4
From reserve officers	146
From non-commissioned officers' direct commissions	264
Total	1,582

PREPARATORY MILITARY TRAINING.—The pre-service training of young men in France is divided into three distinct categories:—

- (a) *Préparation militaire supérieure spéciale.*
- (b) *Préparation militaire supérieure.*
- (c) *Préparation militaire élémentaire*, which is further sub-divided into—
 - (i) Physical training.
 - (ii) Military training.

(a) The *Préparation militaire supérieure spéciale* is given in six of the principal schools, e.g., *Ecole Normale*, *Ecole des Mines*, etc., to which has lately been added the new *Ecole Nationale Supérieure de l'Aéronautique*.

The students at these schools vary in age from 21 to 25, and they therefore have to obtain a *sursis* from their normal military service.

During their two or more years at the schools they carry out an obligatory course of military subjects totalling 240 hours. This includes lectures on general military subjects and on the equipment and tactics of the various arms which are given in the lecture halls of the school itself; drill and other forms of military exercises carried out in some convenient barracks and for which students are equipped with canvas clothing; six half days outside the schools for such purposes as visits to the Artillery Schools at Fontainebleau, the Tank Centre at Satory, reconnaissances, etc. All the expenses of transport, etc., are paid by the State. Each of these schools has a regular officer usually of the rank of *commandant* or *chef d'escadron* in charge of general military education, assisted by a pool of officers from the region, who lecture on subjects connected with their own arm. All these officers are *hors cadre* and belong to the *état-major particulier* of their arm.

Students have to pass an examination at the end of their course, and those who are awarded the *brevet* and who also obtain the diploma of the school are immediately appointed 2nd lieutenants in the Reserve. They then do their year's service of which 8½ months is at the *école d'application* of their arm, and 3½ months with troops. Students from these schools go principally to the artillery and engineers with a small proportion to tanks and infantry.

(b) *Préparation militaire supérieure*.—There are some 300 other schools at which *préparation militaire supérieure* is given. At a certain number of these of the higher class selected by the Minister, the course is obligatory, at the remainder it is voluntary. The hours worked, methods of training and arrangements for instruction are very similar to those described above. Students who obtain their *brevet* and are successful in the school examinations for diplomas, etc., do the first five months of their service in the *Peloton élèves officiers de réserve*, at the end of which they have an examination. If successful and considered suitable they are appointed 2nd lieutenants in the reserve and do their remaining seven months service with troops. The failures finish their service as soldiers of the second class or possibly as non-commissioned officers, and may be appointed *sous-officiers de réserve* on completion.

(c) *Préparation élémentaire* is at present being recast. This is given before the age of 21 years and those who obtain the *brevets* get certain advantages in matters of leave, and as they arrive at their regiments with a certain amount of knowledge are likely to receive a stripe at a much earlier date.

ORGANIZATION.—Two laws amending the *Loi des cadres et effectifs* of 28th March, 1928, have recently been passed by the Chamber and Senate. The general effect of these is to free the hands of the Ministry of War entirely from the very strict limits within which they were bound as to the numbers and composition of formations and units. The Ministry is now free to create further regiments of A.A. artillery, and to settle by decree the composition of nearly all artillery formations and units, of regiments of *tirailleurs*, of the Foreign Legion and of battalions of tanks.

For use with the new frontier fortifications special horse-drawn artillery brigades are to be formed, the number of regiments of fortress artillery is to be increased, and certain regiments of infantry are to have 4, 5 or 6 battalions (instead of the normal 3). These will provide nucleus garrisons for the works without drawing on units required to mobilize with the field army.

Two North African artillery regiments are to be converted to French units, and power is taken, entirely or partially, to mechanize certain cavalry regiments and to group squadrons of armoured cars into regiments.

The whole of the above changes are to be carried out without any increase in the peace strength of the army.

JAPAN

ANNUAL REPORT ON THE ARMY.—During the year 1931 no important change occurred in the strength, organization, training or material progress of the army.

Training.—Training has been on similar lines to that of 1930 but, owing to financial considerations, the number of manœuvres entailing forces greater than a division has been reduced from four in 1930 to one in 1931. There were no manœuvres in co-operation with the Navy.

Manœuvres were carried out over a period of twelve days in the vicinity of the River Tone and included the task of bridging a large river. Three battalions of engineers and students from the School of Engineering took part together with detachments of infantry, field and heavy artillery, tanks, mechanical transport and aircraft.

Exercises in air tactics were held at Akeno for four days in August by the Army Flying School and the 1st, 3rd and 4th Air Regiments. Bombing exercises held over a period of one week in October under the Officer Commanding 7th Air Regiment; 500 of all ranks and about 100 aircraft took part.

Grand manœuvres took place around Kumamoto from 12th to 15th November. Three and a half divisions took part, one division and one mixed brigade being made up of reservists.

Finance.—The estimated army expenditure for the financial year 1931-32 was 188,402,725 yen (approximately £19,000,000 at par). The average actual expenditure over a period of ten years ending 1929-30 was 226,131,710 yen whereas the average estimated expenditure was 219,900,000 yen. The cost of the army in 1931, including operations in Manchuria, is likely to exceed considerably the estimated expenditure.

With effect from 1st June, 1931, the pay of all officers receiving over 1,020 yen a year was cut on a graded scale.

SPAIN

ARMY REORGANIZATION; RECRUITING AND PROMOTION OF OFFICERS.—The following are the principal provisions of a decree published on 2nd May :—

To qualify for a commission, a candidate must pass the examination of the academy appropriate to the arm or service in which he desires it.

Cadets for the infantry and cavalry academy or that of the artillery and engineers will be drawn from :—

- (a) Civilians, between the ages of 18 and 22, who have matriculated and passed in certain subjects at a university. These candidates will serve for four months as private soldiers and two months as corporals in a unit of the appropriate arm and be reported on by its commanding officer. They will be exempted from fatigues, but must

be given no special employment. Forty per cent. of the vacancies at each academy will be filled from this source, 60 per cent. from the remaining two sources described below.

- (b) Warrant officers of the above ages who pass an equivalent examination.
- (c) Other warrant officers, in strict order of seniority, subject to their passing a special entrance examination.

Cadets of the first two classes of candidates do a two years' course (four terms) and are promoted lieutenants on passing the final examinations. Those of the third class only do one year (two terms) and are then sent as 2nd lieutenants (*alfereses*) to units, in which they have to serve for eighteen months before promotion to lieutenant.

Promotion to captain is by seniority, but is conditional on the officer having completed five years' actual service, of which six months is in command of a company or equivalent, and obtained a satisfactory report.

For promotion to major, a captain must have commanded a company or equivalent for three years and have a satisfactory report. In addition he must at the same time as other captains of similar seniority do a nine months' course at the central school of weapon-training or the technical school appropriate to his arm. At the end of this course, there is an examination and seniority for promotion will be adjusted according to its results.

UNITED STATES

THE RESERVE OFFICERS TRAINING CORPS.—The objects of the Reserve Officers Training Corps are first to provide officers for the Officers Reserve Corps and secondly to give such instruction to students, who do not complete the full course, as will make them useful in the army in time of emergency or in the National Guard or organized reserves in peace time.

The corps is organized in Senior and Junior Divisions. The Senior Division is composed of units at universities, colleges and schools which grant degrees and at certain "military schools" designated by the Secretary of State. Units are formed for practically all arms of the service. The Junior Division is formed of units at other schools. It consists of infantry units only and the training is more elementary than that of the Senior Division.

The following figures for the year 1931 give an indication of the importance of the corps :—

	Units.	Personnel.
Strength of Senior Division	220	75,000
Strength of Junior Division	106	41,000
Number of camps held	67	
Attendance at camps	6,700	
Number of regular officers employed as instructors	679	active and 92 retired.
Number of commissions given to graduates during the year	5,150	

The Senior Division is the more important part of the organization. The course lasts for four years and corresponds to the normal period of a college course. The first two years form the basic course which is designed to qualify the student to perform the duties of an N.C.O. of the lowest grade in the arm of the service

for which he is being trained. On completion of the basic course a student may elect to take the advanced course which is designed to qualify him for a commission in the Officers Reserve Corps.

The course throughout the four years consists of three hours class room work and two hours practical work per week. Students taking the advanced course attend a six weeks camp.

A special feature of the R.O.T.C. training in the United States is that a course of military science is included in the curriculum of the universities which maintain R.O.T.C. units, so that the student receives full credit for his R.O.T.C. training in obtaining his academic degree. This offers many inducements to undergraduates to join the R.O.T.C. and take their duties in connection with it seriously.

The R.O.T.C. at Princeton University is probably a typical example of a university unit. The corps is organized as a battery of field artillery. It is equipped with four 75-mm. field guns of modern type, and has 100 government horses, of which 30 are polo ponies. A large riding school and stabling for the government horses are provided.

Seven regular officers and 44 other ranks are maintained as instructors for 550 cadets, and the instruction given is very thorough. Discipline is strict and no slacking is allowed.

AIR NOTES

ROYAL AIR FORCE

ROYAL UNITED SERVICE INSTITUTION.

In an Air Ministry Order (No. 128 of the 31st March, 1932), attention is called to the suspension of the entrance fee of the Institution and the facilities afforded to officers for professional study.

The Order concludes: "The Air Council desire it to be known that they wish to give every encouragement to officers to join the Institution, compete for the essay prizes and take part in the debates after Lectures."

HIS ROYAL HIGHNESS THE PRINCE OF WALES.

His Majesty the King has been pleased to approve the appointment of Air Marshal His Royal Highness the Prince of Wales, K.G., K.T., K.P., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., M.C., Personal A.D.C. to the King, as Honorary Air Commodore-in-Chief of the Squadrons comprising the Auxiliary Air Force.

HIS ROYAL HIGHNESS THE DUKE OF YORK.

His Majesty the King has been pleased to approve that Group Captain His Royal Highness Albert Frederick Arthur George, Duke of York, K.G., K.T., G.C.M.G., G.C.V.O., Personal A.D.C. to the King, be promoted to the rank of Air Vice-Marshal in the Royal Air Force.

CHIEF OF THE AIR STAFF.

It is announced that Air Chief Marshal Sir J. M. Salmond, G.C.B., C.M.G., C.V.O., D.S.O., having expressed the desire to resign the appointment of Chief of the Air Staff in order to accelerate promotion in the junior ranks of the Royal Air Force, His Majesty the King has been pleased to approve the nomination of Air Marshal Sir W. G. H. Salmond, K.C.B., K.C.M.G., D.S.O., to succeed him, with effect from 1st April, 1933.

PROMOTIONS.—The following promotions have been made with effect from 1st July, 1932:—Group Captains C. D. Breese, A.F.C., A. S. Barratt, C.M.G., M.C., and E. L. Gossage, D.S.O., M.C., to be Air Commodores.

RETIREMENT.—Air Commodore J. L. Forbes, O.B.E., has retired, to date 13th May.

PERSONNEL.

OFFICERS SECONDED FROM THE ARMY.—In reply to a question in the House, the Under Secretary of State for Air said that 128 Army Officers had been seconded to the Royal Air Force since the War. Of these officers, 10 were at present serving with the R.A.F. on secondment and 52 had reverted to the Army; while 23 were in the regular Army Reserve of Officers. The scheme for these secondments had been provided for a regular annual quota, so that it was not

possible to make a comparative estimate of how many would have been seconded had the scheme been used to capacity.

DISTINGUISHED FLYING CROSS.—His Majesty the King has approved the award of the Distinguished Flying Cross to Flight Lieutenant John Bradbury, in recognition of gallant and distinguished services in Northern Kurdistan.

MATERIAL.

NEW SHORT FLYING BOAT.—A six-engined Short Flying Boat has just been completed to the order of the Air Ministry for coastal reconnaissance, long range bombing and torpedo carrying. The full loaded weight of the boat is just over 31 tons; the span of the wings, both upper and lower, is 120 ft; the overall length 89 ft. 6 ins.; the height 30 ft. 4 ins. The engines are moderately supercharged Rolls Royce "Buzzard" III M.S. type, and are mounted in pairs in three nacelles, each developing 930 h.p., giving a total of 5,580 h.p. The radiators are under the nacelles and round the lower struts, and the engines are steam cooled. There are four gun rings, one being in the extreme end of the tail, behind the rudder. The under-water portion of the hull is of stainless steel, and the boat will carry a crew of ten. Initial trials which appear to have been very satisfactory, were carried out on 11th July.

MISCELLANEOUS.

AIR EXERCISES.—The annual Air Exercises in Great Britain were carried out between the 18th and 22nd July. An article on these Exercises will appear in the November JOURNAL.

ROYAL AIR FORCE DISPLAY.—The annual R.A.F. display took place at Hendon on Saturday, 25th June. It was very largely attended, and was carried through with the customary efficiency and precision.

GORDON SHEPHARD MEMORIAL PRIZE ESSAY.—The following is the subject for this Essay for 1932-33: "The introduction of new aids to air navigation, e.g. the automatic pilot, instruments for blind flying, wireless direction-finding stations, creates entirely new factors in offensive and defensive strategy and tactics. Discuss these factors and show how they are likely to affect air operations in the future." Essays in triplicate should be forwarded to the Secretary, Air Ministry, in envelopes marked "Gordon Shephard Memorial Essay, 1932-33." to arrive on or before the 1st February, 1933.

OVERSEAS COMMANDS

MEDITERRANEAN

CRUISE OF No. 202 (FLYING BOAT) SQUADRON.—Although officially styled a "Flying Boat" Squadron, this unit actually consists of six Fairey III F. float planes. Four of these aircraft completed, on 15th July, an inter-command development flight from Malta to Khartoum and return. The flight, which was under the command of Squadron Leader H. W. Evens, started from Malta on 20th June and proceeding via Augusta, Corfu, Athens, Castellorizo, Famagousta and Beirut reached Aboukir on 23rd June. Continuing again on the 25th via Luxor and Dongola the aircraft arrived at Khartoum on 27th June. The return flight was commenced on 2nd July the same route being followed as on the outward journey. The distance covered during the cruise was approximately 6,200 nautical miles.

IRAQ

The Secretary of State for War, in answering a question in the House on 20th June, said that a battalion stationed in Egypt had been warned to be in readiness to proceed to Iraq if required. The Air Officer Commanding in Iraq had reported that the number of Assyrian Levies who had been employed as ground guards for Air Force Stations would be progressively reduced. This course was being followed in anticipation of the formation of the aerodrome guards provided for under the Treaty, which would come into operation when Iraq entered the League of Nations (see page 635 of this JOURNAL).

The Levies were dissatisfied with the proposals and with the future prospects of Assyrians in Iraq, and had expressed their intention to disband without waiting for the formation of the new aerodrome guards. In these circumstances, the High Commissioner for Iraq had asked that a battalion might be held in readiness for temporary duty in that country, if required, and the necessary instructions had been sent by His Majesty's Government to the G.O.C. in Egypt. On 22nd-23rd June two companies of the Northamptonshire Regiment were transported by air from Egypt to Bagdad and thence to Rutbah. It is understood from a later pronouncement of the Under Secretary of State for the Colonies that the Assyrian Levies have intimated their willingness to continue serving and to give guarantees of future good behaviour. The British Guard returned to Ismailia by air, early in July.

KURDISTAN

A report of the conclusion of the operations against the Shaikh of Barzan will be found in the International Situation Section of this JOURNAL, page 635.

AVIATION IN FOREIGN COUNTRIES

BRAZIL

Of the eleven Savoia Marchetti flying boats which Brazil acquired from the Italian Government some eighteen months ago in exchange for coffee, only six now remain in action. Two were destroyed last year by landing one on top of the other when alighting in formation, a third hit a sandbank at low water, a fourth crashed during a night flight, and a fifth was blown up through a mechanic searching for a petrol leak with a naked light.

Fifteen Moth Trainers for the Ministry of War and twelve for the Ministry of Marine have now been delivered to the order of the Government by the de Havilland Aircraft Co., Ltd.

EGYPT

The Egyptian Government has abolished the posts of Director of Military Aviation and of Consultant for Civil Aviation, and substituted a Director of Aviation, who will have charge of both military and civil flying, assisted by a Staff Officer. Wing Commander Sir Christopher J. Q. Brand, K.B.E., D.S.O., M.C., D.F.C., R.A.F., and Squadron Leader V. H. Tait, R.A.F., who have been serving in the Middle East, having been recommended for these two posts respectively, their appointments have been approved by the Egyptian Government.

The previous Director of Military Aviation, Air Commodore Board, resigned in April last as the result of a difference of opinion with the Egyptian Government

in regard to the delivery of five D.H. Gipsy Moths, which had been waiting delivery since November of last year, pending the completion of flying training in England of a number of Egyptian officers. In view of this delay and unfavourable weather, Air Commodore Board had arranged that the machines should be sent to Egypt by boat, but the Egyptian Government desired that their first five military aeroplanes should be flown out, and ordered the machines, which had already reached Gibraltar, to be returned to England so that this could be done. Eventually the five aeroplanes were flown to Egypt by two British and three Egyptian pilots, arriving at the Almaza Aerodrome on 2nd June, in the presence of King Fuad, and with much popular acclamation.

ESTHONIA

The Government has recently acquired four Avro 626 advanced training biplanes. These machines have Armstrong Siddeley Lynx engines.

FRANCE

NEW ORGANISATION.—On 1st July the *Régiment d'Aviation* was replaced as a homogenous unit by a *Base Aérienne*. This includes an administrative depot and an aircraft park, the former being responsible for the entire administration and the latter for the technical supply of the units which compose the base. The units comprise a number of *escadres* (*Chasse, Reconnaissance* and *Bombardement*). The new organization replaces the old system whereby each individual *Régiment d'Aviation* was responsible for the training of its recruits, reservists, supply guards, etc., a system which had been found to be detrimental to tactical and specialised training and operations. The new organization, it is also claimed, will permit of rapid mobilization and ensure more homogenous work.

EXERCISES.—During the month of June extensive tests of the defensive measures against air attack were carried out in the Pas de Calais region under the supervision of Marshal Pétain as Chief of the Air Defences. The civil population appears to have entered whole-heartedly into the spirit of these tests, and to have duly taken refuge in the appointed shelters and gone through the motions of taking anti-gas measures when exhorted to do so by official loud speakers. Marshal Pétain at the conclusion of the operations pointed out that as a last resort the civil population in war time must take its own passive measures for defence against hostile air action; the military authorities would be chiefly concerned in taking active measures and could only give advice.

HIGHER TRAINING IN AIR WORK.—The recently disbanded Ministry of National Defence authorised the creation of a *Centre d'Etudes de l'Aéronautique*, where instruction will be given to officers of high rank and those destined for advancement in all three Services in air tactics in co-operation with land and sea forces. The centre is to be commanded by a General Officer of the Air Force who will be responsible to the senior air officers of the General Staff. For administrative purposes it will be attached to the *Ecole Militaire et d'Application de l'Aéronautique* (Versailles).

(See also GENERAL SERVICE NOTES, p. 647).

GERMANY

AIR DEFENCE.—Despite the fact that Germany is prohibited by the Versailles Treaty from possessing military aircraft, an organization is being built up to provide defensive measures against air attack and for exercising the civil population in them. In the latter part of May extensive manoeuvres were held in the North Sea coastal area, in which aeroplanes, warships, coast defence units, police, fire brigades, ambulance corps and civil authorities all co-operated. The principal object was to ensure that speedy warning would be given to the population of hostile attack, while gas mask drill, taking cover and darkening the towns were all rehearsed.

The current estimates of the Ministry of the Interior contain for the first time a provision of 300,000 marks "for the preparation of measures for the defence of the civil population against danger from the air."

JAPAN.

SHANGHAI OPERATIONS.—It is reported that during the attack on Shanghai the Japanese used approximately seventy-five aeroplanes. The fighters were in two squadrons, one of Japanese-built Nieuports, twenty-nine biplanes of an old design, and the other with Japanese-built Gloucester Gambit biplanes. The remainder of the machines were bombers of Mitsubishi design and construction.

PATRIOTIC AIR FUND.—The Japanese War Department is encouraging public contributions towards what is described as "a patriotism air squadron." Up to April of last year twenty-one "patriotism" aeroplanes had been completed, and it is expected that in all sixty-four or more will be in service in the near future.

The Kochi prefecture has raised a sum of 80,000 yen, which has been devoted to the construction of an aerodrome at a strategic point for the defence of the commercial centres of Osaka and Kobe and the naval bases of Kure and Hiroshima. Another movement has been started to assist in the defence of commercial cities against aerial invasion, and by the end of last May a sum of approximately 1,000,000 yen had been raised in Osaka alone. It is proposed to use this to equip the city with a number of anti-aircraft artillery corps.

SPAIN.

On the 6th July, Senor Azana, the Spanish Minister for War, announced that he intended to create a National Air Force to comprise naval, military and civil branches.

UNITED STATES

HIGH SPEED FLYING.—A sum of \$220,000 has been allowed to the Navy Department by Congress for the development of high speed flying. Admiral Moffat, Chief of the Bureau of Aeronautics has stated that it will now be possible to consider the actual procurement of a high powered engine and, dependent on the results obtained experimentally, to determine to what degree modern naval aircraft with extremely high powered engines might be useful in the naval aviation programme.

AIRSHIP NOTES

GREAT BRITAIN

BRITISH HELIUM.

According to a report in *The Aeroplane*, a promising source of helium has been discovered in Trinidad, although the quantity available cannot be ascertained so far. The only other part of the British Empire where helium is at present known to exist is Canada, but as yet this is not being developed on an economic basis. The main supplies of this gas are still confined to the United States.

GERMANY.

"GRAF ZEPPELIN'S" VISIT.—The "Graf Zeppelin" paid a week-end visit to England on 2nd/3rd July. The airship arrived at Hanworth from Freidrichshafen about 7 p.m. on 2nd July, and having disembarked her passengers from Germany, embarked those for the twenty-four hours trip round the British Isles. She cast off about 10 p.m. and, having flown to Portsmouth, returned to London; flying over the city with all her lights on she was a most impressive sight. Thence she turned North and followed the East Coast to the Firth of Forth; turning westward over Edinburgh and Glasgow, she crossed the Irish Sea as far as the Isle of Man. On her way South again she passed over Liverpool, Birmingham, Cheltenham, Gloucester, Bristol, Newport, Cardiff, Taunton and Southampton, from where she made her way via Aldershot back to Hanworth, arriving on the evening of 3rd July.

The "Graf Zeppelin" was moored in the open on Hanworth aerodrome on each occasion, and held by three nose-mooring ropes manned by Rover Scouts. It is true that the weather was fine, but, even so, the simplicity and certainty of the operation were very remarkable, and showed that Dr. Eckener and his crew are highly expert at handling their vessel. The airship throws out her mooring ropes and then lands lightly on a nose bumper under the navigating cabin, at an angle of some 10-15 degrees; then, by adjusting ballast and the use of the controls, the tail sinks gently to the ground. She is, of course, very much smaller than our "R.100" and "R.101" were, but the way in which all the paraphernalia of a mooring tower are dispensed with and the ease with which she alights and takes off cannot fail to produce very favourable comment.

UNITED STATES

"AKRON'S" MOORING FATALITIES.—On the completion of her first flight to the Pacific Coast in May last, the U.S. naval airship "Akron" was mooring at the base at Camp Kearney, near San Diego, California, when she broke loose carrying three of the ground personnel into the air on the mooring lines. Two fell some 200 feet and were killed, the third held on for about three hours and was eventually hauled into the airship.

Later on, the weather having improved, the "Akron" was moored successfully.

NEW CONSTRUCTION.—Work on the new naval airship "Macon" is proceeding rapidly and the greater proportion of the skeleton has already been assembled. The vessel is being constructed in the huge shed built for the "Akron," and experience gained in the earlier craft is greatly facilitating completion of this, the biggest airship in the world.

REVIEWS OF BOOKS

GENERAL

Stanhope : A Study in XVIIIth Century War Diplomacy. By Basil Williams. (Clarendon Press). 18s. od.

James Stanhope, first Earl Stanhope, shares with the Duke of Wellington the distinction of having been both Prime Minister and Commander-in-Chief of a British army in the field. In his case it is rather on his political career than on his military exploits that his importance rests, for his military record, though respectable, was not remarkable and ended in defeat and surrender. The prominent part he played in establishing the Hanoverian dynasty on the British throne and in directing our foreign policy with conspicuous success in the troubled years which followed the Peace of Utrecht makes it rather remarkable that no adequate biography of him should yet have been written. Professor Williams, of Edinburgh University, has very successfully filled the gap and his account of Stanhope's career will be invaluable to any one who wishes to acquire a grasp of the history of the period. It is naturally fuller on the political than on the military side, for the negotiation of the Anglo-French Alliance in 1716 and Stanhope's successful handling of the European crisis which started with the Spanish attempt to win back from Austria and Savoy their Utrecht gains in Italy quite outweigh the campaigns of 1708-1710 in Spain, though his capture of Minorca in 1708 was a service of real value and importance.

Of Stanhope's military career Professor Williams gives a clear and satisfactory account. He first saw service in Savoy in William III's war against Louis XIV, serving with a Huguenot regiment in British pay. Transferring, in 1699, to a British regiment, the present 1st Gloucestershire, then Gibson's Foot (not as Professor Williams calls it (p. 15), "Gibbons'"), he served in Flanders, distinguished himself and was wounded at the siege of Namur and was rewarded by obtaining a company in the First Guards. Shortly after the outbreak of the Spanish Succession War he received command at the age of twenty-nine of the Regiment of Foot now the Devonshire—no longer, as Professor Williams has it (p. 24), the "North Devons"—with which he served under Marlborough in Flanders in 1703. At the end of the year "Stanhope's" was one of the good "old regiments" selected by Marlborough to form the British contingent of the forces sent to Spain to support the Archduke Charles, the Hapsburg candidate for the Spanish inheritance. This brought Stanhope in for a share in Peterborough's capture of Barcelona in 1705 and in the relief of that town in 1706. After acting as British representative at the Archduke's court for some time, Stanhope reverted to military duty in 1708, was responsible for the attack on and capture of Minorca, and in 1710 commanded the British contingent which took part in the second advance to Madrid. In the two battles fought on the way to Madrid, Almenara (July 27th) and Saragossa (August 20th), Stanhope took a leading part at Almenara; he actually engaged the commander of the opposing Spanish cavalry

in single combat and killed him, while at Saragossa it was his success against the enemy's right which decided the battle in our favour. He seems to have been largely responsible for the decision to push on to Madrid, an unfortunate decision as it turned out, for in the face of the persistent hostility of the Castilians to a candidate whose troops were mainly either heretics or Portuguese, the position could not be maintained as the Allies had to evacuate Madrid and retire upon Aragon. It was then that Stanhope with the British contingent of some 4,500 men was overtaken and brought to action at Brihuega by vastly superior forces under Vendome and forced to surrender (December 9th) after a most gallant defence. Stanhope's generalship has been adversely criticized—he was perhaps remiss about putting out outposts; but the main reason for his defeat was the extraordinary and unaccustomed energy with which Vendome, usually the most slothful and indolent of commanders, pressed the pursuit. Stanhope could hardly have anticipated such a departure from Vendome's usual form; if anyone was to blame it was rather his Austrian colleague, Stahremberg, who was distinctly tardy in moving to his assistance (p. 113).

Professor Williams has been a little unlucky in his proof-readers, for minor errors which should not have escaped notice are numerous. A footnote on p. 107 describes Pepper's (now 8th Hussars) and Stanhope's Dragoons (disbanded in 1713) as "Horse" and muddles up "Foot" and "Foot Guards" badly. Again, on p. 56, Lord Rivers is credited with bringing 45,000 reinforcements to Spain in 1706, it should be 4,500 and the "English" contingent at Almanza did not consist of 51 squadrons and 43 battalions of native English. But these minor blemishes, though annoying, detract but little from the value of a very readable book of considerable value and importance.

The North-West Frontier, 1890-1908. By C. Colin Davies. (Faber & Faber). 12s. 6d.

From the title of this book it would appear that only one period of our North West Frontier history is dealt with, but in reality it comprises a clear, concise and admirably arranged historical study of events on and beyond the North West Frontier from the time of the conquest of the Punjab in 1849 up to the year 1908.

The author, who has had the advantage of access to official records and secret documents, and who has served as an Indian Army officer on the Frontier, both in peace and in war, claims to have spent several years in careful research and to have taken special care to ensure accuracy. Both these claims are fully justified. He states his facts clearly and concisely, explaining by means of numerous footnotes the sources of his information, and the deduction he makes on the various problems discussed are sound, convincing and unprejudiced. Of particular interest are the chapters on Policy, which he deals with from the point of view of Imperial Defence, and also with regard to our dealings with the frontier tribes, and he lays considerable stress on the baneful influence of English party politics on our frontier problems in the past and the evil effects of that curse of the frontier, the "middleman."

On one point the author's opinion is perhaps too uncompromising and that is the much debated question of the effects of Sir Robert Sandeman's system applied to the North West Frontier tribes. He explains how it was applied by Bruce in Waziristan and how it failed, and then suggests that it could not possibly have been a success. It must, however, surely be a matter for conjecture as to whether Sandeman, whose method of dealing with the tribes was "to cast fear aside and advance boldly into their mountain retreats and make friends with their chiefs;"

if he had lived to extend his great personal influence northwards, would not have brought about the peaceful subjugation of the wild tribes of Waziristan as he had done with the turbulent Marris and Buglis further South.

Other subjects dealt with in the book are the Russian menace, the problem of Afghanistan, causes of tribal unrest and our various methods of coercion. The chapter on Ethnic Considerations contains a very accurate summing up of Pathan characteristics and there are three good maps of the Frontier and several appendices of general interest.

As a historical study of the early part of our Frontier history this work is of great value, and it is to be hoped that the author will some day produce another volume dealing with the later period, from 1909 onwards.

The Indian Police. By J. C. Curry. (Cambridge University Press). 12s. 6d.

No one reading Mr. Curry's clear, plain, truthful and altogether admirable account of the policing of the continent of India can but swell with pride at the achievement of the British officer in producing so remarkable a force. To a student of India and its affairs, particularly at this time, when a fundamental change is about to take place in the constitution of that country, Mr. Curry's book will provide invaluable information, nowhere else obtainable in so compact or in so readable a form.

In the first seven chapters he traces the growth of the system to its present organization. He then passes to the variety of crime and the difficulties of maintaining law and order in so large an area, where there are such fundamental differences of race, of language, and of creed. He gives frequent apt illustrations of the nature of the work which the officer, whether British or Indian, with his peasant-born constable has to deal with. Finally, in a brief chapter, he stresses certain police problems in their relation to the future.

The Police Forces are provincial. The responsibility for the maintenance of law and order and for the control and efficiency of the forces rests therefore on the Provincial Governments. But, while the Provincial Government is held responsible for the conduct of its own affairs, the Government of India has its responsibilities as agent of the British Government. Provincial autonomy of the future will mean that the members of the Provincial Council will all be Indians. The outstanding problems of to-day will be those of to-morrow—they are rioting and dacoity. The increase of rioting in recent years has been due to communal tension. Is communal tension likely to subside in the future? The suppression and control of dacoity depends on the criminals being made to feel that conviction follows the crime. Even now that feeling is not very deep. Will it change for the better under the future regime? The suitability of the English Law of Evidence has been found wanting to meet the crime of dacoity under Indian conditions and special measures have had to be introduced from time to time. Mr. Curry considers the law must be changed so that the police can bring criminals to justice more successfully. He is of opinion that another question of outstanding importance for the future is to find means to secure the police from political intrigue.

No one can read this book without agreeing with the author that in creating the present Indian Police Force the British and Indians have jointly achieved a miracle. Lord Lloyd, in his preface, voices the feelings of all those who know, in saying that Mr. Curry's book provides a true picture of the men who for years past have been the objects of obloquy, of insidious attempts at corruption, of social ostracism, of physical violence and assassinations,—and have stood firm.

People of the Book. By Major A. J. Pott, D.C.M. (Blackwood). 5s. od.

To appreciate this book it is necessary first to read Sir Reginald Wingate's Foreword, which tells the story of the author and his life's work, for the strong personality of the writer stands out in every one of the stories that compose it. It will then be possible to value more adequately the fine results, achieved by Major Pott and other officers of the same stamp, which are reflected throughout these tales that deal with the tribes of the Sudan, "the people of the Book," i.e., the Koran. The skilful manner, in which the mode of life of these people is depicted is remarkable. The value of the stories is further enhanced by the fact that the whole order of things presented therein is passing away. In particular we would mention the tale relating the end of the Sultan of Darfur.

Apart from the intrinsic interest of the tales, they are worth reading as models of how the episodes of a soldier's life on the wild frontiers of the Empire can be turned to literary account and given an attractive shape. On putting down this little volume the reader will be filled with regret at the thought that so promising an author will never write again.

NAVAL

The Nelson Collection at Lloyd's. Edited by Warren R. Dawson (Honorary Librarian to the Corporation of Lloyd's). (Macmillan). 10s. od.

The connection of Lloyd's with the Royal Navy has ever been generous, and this tradition of liberality has recently been upheld by certain benefactors who have presented to the Corporation various relics and papers of naval interest, all of them near, if not actually of, the Nelson period. This book is the authorized record of the collection.

There is a great variety of documents. The most interesting, before the Nelson period, is a letter from Rodney to Lord Sandwich, written after his captains failed him in the action of the 17th April, 1780. He is in his most gouty mood, and his manner of dealing with his officers stands in odd contrast to the more brotherly methods of Nelson, of which we are to get a glimpse later in the volume. The correspondence between Lord St. Vincent and Sir John Orde is another interesting, though occasionally depressing, item. St. Vincent, no doubt under the strain of ill-health, was clearly to blame on the fundamental issue, but Orde does his best to put himself in the wrong by his tedious and insistent punctilio. Other documents include letters between the Admiralty and the commanders at sea, Admiralty minutes, letters from Troubridge, numbers of characteristic letters from Nelson himself, and a host of papers about the administration of the Patriotic Fund.

The collection has been edited by Mr. Dawson with scholarly care and exactitude, and he has supplied profuse notes that must have involved much painstaking research. His sectional introductions, too, are admirable, with the exception that his attack on Nelson's behaviour at Naples is in some respects uncritical. Without necessarily supporting all Nelson's acts on this occasion, one can at least refrain from blaming him for supporting the Bourbons—who were England's allies and whose morals were consequently not his concern. The Admiralty, moreover, approved of his action in this particular.

Last Days of the German Fleet. By Ludwig Freiwald. (Constable & Co., Ltd.). 7s. 6d.

The author of this book served as a seaman on board the "Nassau," and saw the events which marked the end of Germany's fine navy and with it the collapse

of the Central Powers. It is written in "popular," loquacious, style; but throughout there runs a strong note of patriotism and pride of service. It is to the feeble handling of the situation by the Government that the writer ascribes the spreading of the outbreak of Communism, which destroyed all discipline and disintegrated the fleet as a fighting force.

Reading the account of the last surrender, it is impossible not to feel something of the tragedy it must have been to those who loved their ships; and whatever the ethics of the case, one cannot fail to sympathise to some extent with the sinkings which the German officers and crews of the interned ships seem to have regarded as a final act to save the honour of a betrayed fleet. Yet how purposeless they were, for the actual end of many of the ships proved far more ignominious—raised from their sea grave, they have been taken to the one-time base of the British fleet, there to be docked, in readiness for destruction—bottom up.

The author, however, finds consolation in the birth of the new German navy, wherein he suggests all the old traditions are restored and stabilised. If that be so, it will find little resentment in this country to-day, certainly in our Navy, which will remember its old enemy as it was before the mutiny—a gallant foe, worthy of our steel. In the years to come, it will be the part of the navies of the "two white nations" to unite once again in their mission to keep the peace.

This is a readable little book which, making due allowance for journalistic licence that at times obviously borders on fiction, is not without value as a record of great events.

MILITARY

The British Way in Warfare. By Liddell Hart. (Faber & Faber). 12s. 6d.

This book is mainly a reprint of various lectures and essays which have appeared during the past two years under Captain Liddell Hart's signature. Chapter I, for instance, is substantially the lecture which the author delivered at this Institution on the 28th January, 1931, and which appeared in the *JOURNAL* for August of that year under the title of "Economic Pressure or Continental Victories"; while Part IV., in all essentials, appeared in the *JOURNAL* for August, 1930, under the heading "The Essence of War." We are not a little surprised, therefore, that the author has paid such scant regard to the ordinary courtesies that the only allusion we can find to the origin of these chapters is a bare acknowledgment in the Foreword that "the book comprises essays and lectures (relating to the essential theme) that have already been printed in various periodicals . . ."

The resulting compilation, however, is of considerable interest in that it represents the opinions of an exponent of the "forward" school of mechanization assembled under one cover. Indeed, no student of war or of modern military history should fail to read these pages, even though he may not be able to see eye to eye with the writer. It is, of course, obvious that Captain Liddell Hart is a confirmed "Easterner," and that the first part of the book is an attack on the French doctrine of war, or Plan XVII, since the latter, in 1914, had become the incarnation of the former. In this respect he is undoubtedly right; but how far the British Expeditionary Force could have been employed differently is another question. Two facts have to be taken into consideration: first, there is the whole internal and external political problem which, in 1914, certainly influenced the purely military strategy to an untold extent; could the latter have been shaped otherwise? That is open to argument. Secondly, the whole of the

preliminary work on which was based the action of the Expeditionary Force had, in many respects, been sadly misjudged. No adequate plan for its employment to the best advantage had been worked out; no thought had been given to the possible action of Belgium. This brings us to the author's merited eulogy of that much neglected French strategist, Colonel A. Grouard; but might we remind him that some of us did study that writer with much satisfaction in our younger days?

From this basis Captain Liddell Hart proceeds to expound many theories as to future warfare, and has much to say about the Territorial Army which will command attention. Then he has an interesting chapter on the Italian army.

With many of his arguments we find ourselves in sympathy until we begin to consider three questions:—

- (1) How far is XVIIIth Century British strategy still possible in the face of modern means of transport and communications?
- (2) How far is a military commander able to follow the dictates of reasoned strategy without giving way to political or social necessity? For instance, in 1914, at any rate, the French High Command was given a fairly free hand when it came to defending their country. Was this so in Britain?
- (3) How far should one distrust the argument of a professional critic? The critic's role is easy—so is that of a Parliamentary Opposition; yet when the latter has got into power and tries to govern according to the dictates of reasoned intellect, what has been the result? The "British Way in Politics" of recent years does not carry conviction that an Opposition, whose knowledge of how to control affairs is based on theories rather than experience, will make a success of its task.

In the meantime we cannot help appreciating how successfully Captain Liddell Hart has assumed the mantle of the late Colonel Repington, and admit that he has produced an able and clever book, which cannot fail to excite a healthy cathartic influence on the military world. With one maxim which appears in his Foreword we are in complete agreement with the author: "if you wish for peace, understand war." We would commend this primary necessity to our political delegates at any future Disarmament Conference.

General Sir John Maxwell. By Sir George Arthur. With a Foreword by Field-Marshal H.R.H. The Duke of Connaught, K.G. (John Murray). 15s. od.

We welcome this very pleasant biography of a remarkably good soldier. Although never in command of troops on service, except at the Battle of Omdurman, Maxwell was obviously a capable officer. Fortune so disposed of him that from his early service in 1882 he should have been entrusted with administrative tasks, chiefly in the sphere of military police duties and in tasks of managing a civil population under military rule. By nature precise and conscientious, this class of work made of him a very thorough organiser and painstaking administrator. These characteristics are strongly brought out by Sir George Arthur.

There is no doubt that Maxwell was a man after Kitchener's own heart, and his long co-operation with Kitchener in Egypt and in South Africa were a fitting training for what was really the most important phase of his military career, that is, his command in Egypt in 1914-1916. There are, of course, many who will see in his monumental preparations for the defence of the Suez Canal in 1915 all the symptoms of a leader unaccustomed to think in terms of bold strategy. But it has to be admitted, as Sir George Arthur relates, that he was Kitchener's own

choice in this position, and that he was carrying out a policy imposed on him from above.

It is, however, to the Irish Rebellion of 1916 that most readers will turn for information. If so, they will find little that is fresh. The relation of the events is clear and it shows what Maxwell did in this perhaps most thankless and difficult task; but of new matter there is none; of anecdotes not one scarcely that could be acclaimed as a "good story." Maxwell was neither a diarist nor a "raconteur."

Too many military biographies err on the side of unquestioning panegyric. Sir George Arthur has not strayed too far in that direction, for Maxwell's successes were unquestioned and have endured without being belittled. Neither are there any revelations nor acrid controversies in the book; Maxwell was fortunate in not being connected with any of these. There is, however, one matter in which we should have welcomed more discussion, namely, his profound interest in Egyptian history and antiquities; among Egyptologists he would have ranked high had he chosen to abandon the Army and take to that form of study.

Lectures on F.S.R. III. (Operations between Mechanized Forces). By Major-General J. F. C. Fuller, C.B., C.B.E., D.S.O. (Sifton Praed & Co.).

7s. 6d.

Less than a year ago there was published General Fuller's "Lectures on F.S.R. II." In the preface to that book he stated that in his opinion F.S.R. should be issued in three parts, two volumes appearing as they now stand, with a new third part treating of future warfare. It is this third—imaginary—volume that General Fuller now proceeds to compile in his own manner and in his own language, and the result is a thoroughly intriguing production.

Taking the framework of F.S.R. II as a guide, he proceeds to treat of future warfare between mechanized forces. In this speculative style of writing we find General Fuller at his best. It is true that, as he admits in the preface, insufficient space is devoted to the influence of aircraft in this nature of warfare; in spite of this defect the gist of the argument carries weight. Whether every reader will agree *in toto* with General Fuller is another story. In particular, some readers may cavil at the opinion that "cavalry can play no part in the defensive operations of the future." Again, although he admits that "mountain warfare proper" is "totally unsuitable for motorized and mechanized troops," he claims that "valley fighting falls into another category"; and he adds that "most of the villages . . . situated in them . . . can be attacked by tanks." Notwithstanding his partisanship for the armoured vehicle, General Fuller's book deserves serious study in the absence of any official pronouncements on this whole subject of future warfare, excepting of course the secret publications which are not available to the majority of officers. We should, however, be curious to hear what serious financial experts would have to say to the cost of building and maintaining such an army of armoured vehicles, both in peace and in war. Not with a view to questioning its desirability or possibility but solely as a guide to the expenditure involved in the upkeep of such a force to meet all Imperial needs of the present time.

Administrative Schemes with Solutions. By Major S. W. Kirby, O.B.E., M.C., R.E., and Captain (Brevet Major) C. A. P. Murison, M.C., R.A. (Clowes & Sons). 4s. od.

Among the many books that have been published with a view to assisting candidates for promotion and Staff College examinations, this volume should fill

a distinct need. The administrative side of military operations is apt to be overlooked; so it is a good thing to have a few schemes expounded in detail which show the processes at work in rear of the actual combatant front.

The authors have taken the Division as the standard unit and then studied a number of problems under each phase of a battle. These problems deal with ammunition; food and water supply; disposal of prisoners; bathing and laundries; repair of rifles; etc. The discussion of each problem appears to be well thought out and thorough. We seem to recognize a familiar bias in many of them; but, when not altogether new, the problems have been so well brought up to date with details, such as embussing infantry and the like, that they read as though entirely novel. The book deserves success.

Die Marne—Deutschlands Schicksal? By Lieut.-General Marx. (Berlin: Mittler). 1.50 marks.

There is a lot of sound sense in this pamphlet, which has the sub-title "A word against dramatizing military history." The author's main argument is that Germany lost the war because the *Reichstag* would not consent to the increase of the Army demanded by the Great General Staff, so that the strength of the Army in 1914 was insufficient to ensure victory in view of the relatively high quality of the opposing troops and their skilful leading. Germany should have had twenty corps more. A great war is a general test of the fitness of the belligerent nations to survive, while the unready and unwarlike nation perishes. Success is made easier and defeat comes more slowly if one side has leaders of special eminence, like, say, Napoleon; yet in the end victory does not depend on the acts and decisions of personalities, but on the nation itself. General Marx surveys the campaign of 1914 to show that, if at the various stages something different had been done to what actually occurred, the German situation might have been temporarily improved, but, with the numbers available, it was impossible to win the war. He is of opinion that Moltke, far from watering down the Schlieffen Plan, really improved it; for it was made for 1905, not 1914. The Supreme Command, basing its orders on the optimistic accounts of victories reported by the Army commanders exposed the German Army to a strategic defeat, but the retirement from the Marne was not the loss of the war, in fact, Bülow and Hentsch by ordering the retirement, saved Kluck's Army from destruction. He ridicules the idea that the small local successes gained at the two ends of the battle line of the right wing, over Foch and Maunoury, constituted a decisive victory, from consummating which the German Army was stopped and pulled away by the order to retire.

AIR

An International Air Force. By J. M. Spaight. (Gale & Polden, Ltd.). 5s. od.

Is it really necessary to write, much less to read, a whole book—even a small one—to show that the idea of an international air force is impracticable? We really cannot believe that such a work is wanted by anyone who has a proper share of national pride, and of faith in the fighting Services of the Empire. To pacifists—especially of the belligerent brand—to internationalists, and idealists who look to Geneva to give birth to the millenium, we commend this painstaking analysis of an academical proposal; but we fear that those are the very people who avoid reading anything which tends to demolish their pet theories and castles in the air.

Mr. Spaight really sums up the whole matter when he says quite early in his book "the conclusion to which one is forced is that every scheme for an international police, whether flying or not, is an impossibility without an international government," and the latter implies "the surrender of national liberty or sovereignty"—a price which no nation, and least of all the British, is prepared to pay.

The author alludes to the many schemes which have been put forward by so-called "authorities" for a force of this nature, but it is the official French proposals made to the Disarmament Conference which have doubtless inspired this book. These included, not only the internationalisation of civil aviation and of heavy bombing machines, but also, in modified form, of long-range guns, warships of over 10,000 tons and large submarines, plus the creation of an international police force. But it is to be feared that the French cannot be credited with idealism or pacifism in making these proposals. That typical exponent of the truly practical outlook of his fellow countrymen, Admiral Castex, has advocated that France should at all costs avoid tying her hands, and that if she can obstruct conferences for the limitation of armaments in no other way, she should "propose solutions, praising their merits whilst all the time knowing that they will not be acceptable to other nations, since it is for that very reason they were conceived"¹. It would appear that an international air force falls into the category of these "red herring" proposals so far as its chief advocate is concerned. It therefore scarcely merits further discussion.

¹ *Vide* The JOURNAL for May, 1932, p. 306.

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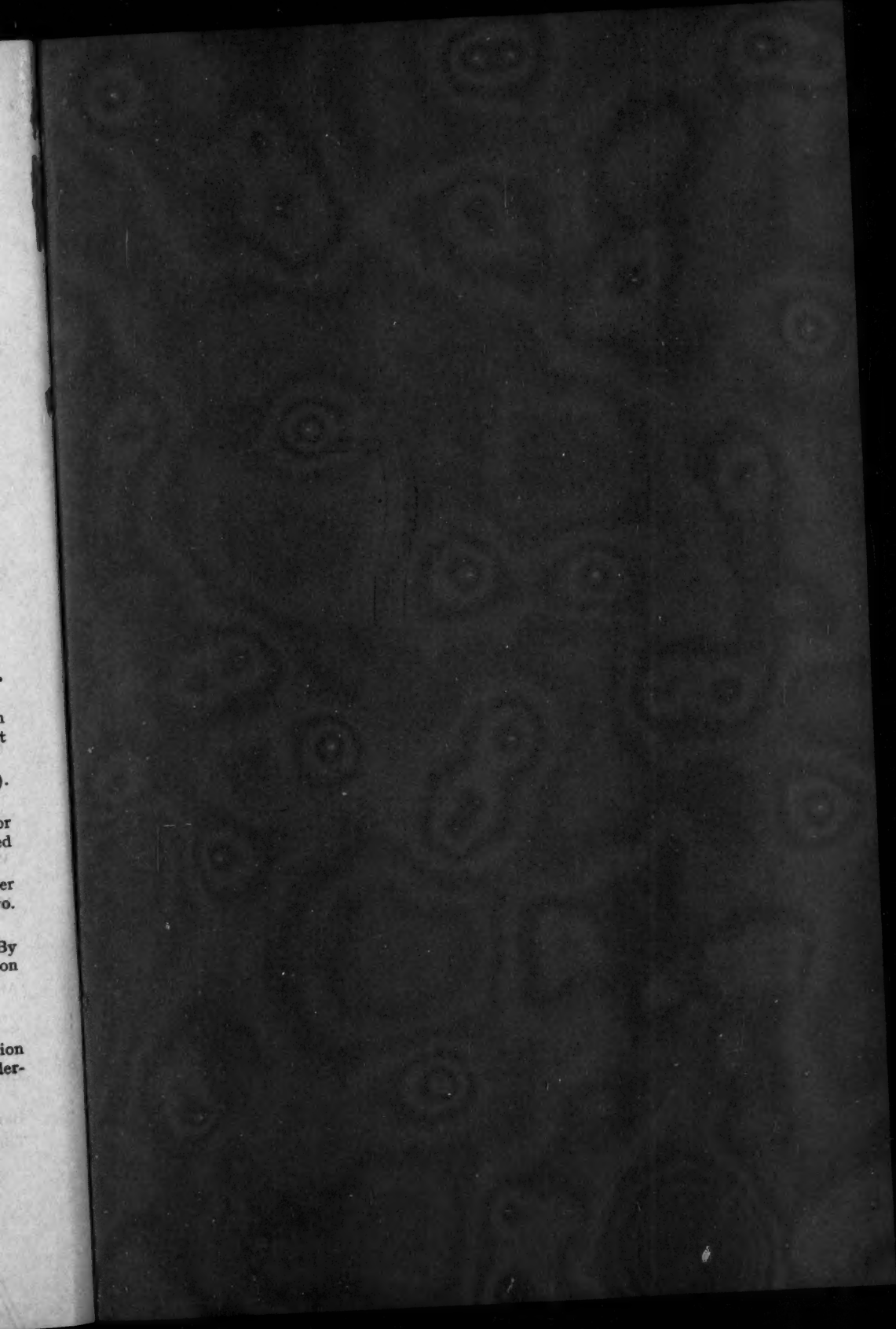
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